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OVERSIGHT OF THE AIR TRAFFIC CONTROL SYSTEM

HEARING

BEFORE THE

SUBCOMMITTEE ON AVIATION

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

ON

THE OVERSIGHT OF THE AIR TRAFFIC CONTROL SYSTEM

MAY 28, 1987

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CONTENTS

	Page
Opening statement by Senator Ford	1
Opening statement by Senator Kassebaum	2
Opening statement by Senator Kasten	2
Opening statement by the Chairman	3

LIST OF WITNESSES

Burnett, Hon. James E., Chairman, NTSB; accompanied by David Kelley, Chief of Operational Factors Division, Bureau of Technology	33
Prepared statement	45
Engen, Hon. Donald D., Administrator, FAA	8
Prepared statement	29
Question of Senator Danforth and the answer	32
Lautenberg, Hon. Frank R., U.S. Senator from New Jersey	4
McLure, Herbert R., Associate Director, GAO; accompanied by Tony Csisari; and Tom Barchi	48
Prepared statement	57

OVERSIGHT OF THE AIR TRAFFIC CONTROL SYSTEM

THURSDAY, MAY 28, 1987

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
SUBCOMMITTEE ON AVIATION,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:05 p.m., in room SR-253, Russell Senate Office Building, Hon. Wendell H. Ford (Chairman of the subcommittee) presiding.

Staff members assigned to this hearing: Steve Palmer, professional staff member; Harris Livingstain, staff counsel; and Patty Hahn, minority staff counsel.

OPENING STATEMENT BY SENATOR FORD

Senator FORD. Good afternoon, ladies and gentlemen. Today the Aviation Subcommittee continues its oversight of the safety of our air transportation system.

This is the subcommittee's third day of hearings on aviation safety thus far in the 100th Congress, an indication that it is a top priority of this senator as well as many others on this committee.

Earlier this month the National Transportation Safety Board unanimously recommended that, because of the saturation of the air traffic control system, the FAA should take steps to limit the amount of airline traffic during the peak summer travel months.

These recommendations originated from the fact that airline traffic is increasing to record levels while controller staffing shortages and aging computers continue to be a reality.

On May 14, the Commerce Committee reported out S. 1184, legislation to provide the funds needed to expedite modernization of our airports and airways, thus providing the capacity needed to handle the expected growth in airline operations.

S. 1184, which was unanimously approved by this committee, also requires the hiring of an additional 1,000 air traffic controllers, an amount that is needed to provide the margin of safety that I as well as the members of the National Transportation Safety Board remain so deeply concerned about.

As critical as these steps are, they are long-term measures. It is this summer, the very short-term that we are concerned about today.

In recent weeks we have seen continuing evidence of airline traffic increases, a trend which based on historical travel patterns can be expected to continue throughout the summer months.

And as traffic levels rise, the potential for disaster grows, with increased numbers of controller errors and near mid-air collisions between aircraft.

Given these facts, it is imperative that the Board's recommendations be further explored. To do this we have asked Chairman Burnett, FAA Administrator Donald Engen, and Herb McClure, Associate Director of the General Accounting Office to appear today. Also requesting to appear today is the distinguished Senator from New Jersey, Senator Frank Lautenberg, and he will be our first witness.

But before I call on him as a witness, I want to recognize the ranking Member of the Aviation Subcommittee, Senator Nancy Kassebaum from Kansas. Senator?

OPENING STATEMENT BY SENATOR KASSEBAUM

Senator KASSEBAUM. Thank you very much, Mr. Chairman. I think this is a very important hearing, particularly because there have been statements made in the press recently, both pro and con, on the question of whether air safety might be in jeopardy this summer.

It is of great interest, not only to this subcommittee, but to all of us to make sure that indeed we are aware of what actually is taking place. And I look forward to this testimony.

I would just comment, Mr. Chairman, that if the levels of air travel that have been projected for this summer are actually reached, the system is going to be severely tested. And I know that this committee and this Congress will then indeed be placed in the position of, I think, restricting the level of air traffic.

I would hope that we might consider some steps that would be an interim measure between the flow control efforts that the Federal Aviation Administration has initiated, which I think are working well, and imposing high density rules on all of the major airports. I have in mind something like a travel advisory, which would indeed allow passengers and the airlines to warn their passengers that they might be held on the ground for an hour.

The airlines know ahead of time that there are those crunch hours. This is a notification that I think could serve not only the traveling public well, but would force the airlines to be more thoughtful in their scheduling and give the passengers an opportunity to reschedule, if delays occur, instead of being held inside a plane for an hour with no alternative available but to sit and wait.

Thank you, Mr. Chairman. I look forward to exploring some of these issues in greater detail and in questions.

Senator FORD. You are a mighty good senator, and I appreciate your support and help, Senator. Senator Kasten, do you have any opening statement?

OPENING STATEMENT BY SENATOR KASTEN

Senator KASTEN. Mr. Chairman, just a brief one. First of all I want to thank and congratulate you for this series of hearings.

I think that all of us are concerned and I am distressed, frankly, that we continue to see today in the paper, in the last couple of

days, statements from the FAA saying that there is no increased danger, and that the skies are safer than ever.

I believe that is just plain wrong. We are not safer than ever. I think we have been luckier this year than before. We are not safer, we are luckier. And our luck could run out.

The real test, I think, of safety lies not in the accidents that are not happening, and we are fortunate that they are not happening, but in the increasing number of potential disasters.

These include near mid-air collisions, runway incursions, and controller operational errors. And if we stop and look, near misses are up 11 percent from 1985 to 1986, from 758 to 839.

Runway incursions skyrocketed 50 percent from 1984 to 1986, going from 77 to 115. And controller operational errors are up 18 percent in just the first quarter of this year over the same period last year.

Now the FAA keeps pointing to their Central Flow Control Facility as a key improvement, and that might be true. But we are still not dealing with a number of important problems, particularly the en route congestion set of problems that we have got.

I believe that the FAA has failed, completely failed in addressing the safety bureau's concerns about this system. And it is about time that these criticisms were addressed.

I believe it is clear, Mr. Chairman, and I agree with Senator Kassebaum, that Congress should and will press for adoption of all or part of the Safety Board's recommendations on flight restrictions and operational standards before the summer air travel season begins.

Unless we want to see more near misses or the possibility at least of near misses blossoming into full blown disasters, we have got to put a lid on the number of flights allowed. At this point, with the traffic levels projected, I believe the system is reaching a breaking point.

I look forward to working with you, Mr. Chairman, and those who are going to be testifying before us today as we look to try to deal with this problem before our luck runs out and while we still are in the position of hopefully avoiding some of these very, very serious possible disasters.

Senator FORD. Senator Hollings, our Chairman, do you have a statement?

OPENING STATEMENT BY THE CHAIRMAN

The CHAIRMAN. Mr. Chairman, in the first 5 months of this year, there were a record 344 near mid-air collisions reported to the Federal Aviation Adminstration by commercial airline pilots. Amazingly enough, this represents an increase of only 15 percent over the same period last year. Out-dated air traffic control equipment and insufficient numbers of experienced controllers—combined with record number of travelers—have all been contributing factors to an apparent dimunition of aviation safety.

Every day, we hear news of another near-catastrophe. Just this past weekend, a small private plane came dangerously close to colliding with a commercial airliner near BWI Airport. While the

cause for this mishap remains unknown, it again raises the question of what steps shuld be taken to enhance aviation safety.

I, for one, would like to see the expanded use of altitude reporting transponders in private aircraft—devices which enable air traffic controllers to precisely locate each and every aircraft in the crowded skies. It is only one step, but it may produce significant safety improvements. There may be other actions that we can take now to increase safety in our skies.

Earlier this year, this subcommittee held two days of hearings on safety and the air traffic control system. Now, once again, we find ourselves confronted with statistical evidence that the margins of aviation safety are continuing in a downward trend: the number of controller errors increased by 18 percent in the first quarter this year over the same period last year; the number of near collisions on airport runways increased from 103 in 1986 to 115 this year; and the number of collisions which were avoided due to chance, as opposed to a calculated maneuver, increased nearly 50 percent from 1985 to 1986.

Mr. Chairman, recent surveys indicate that the current controller workforce is spread precariously thin—with controllers working more overtime than ever before. For example, in Atlanta, while the number of controllers is 26 percent below pre-strike levels, overtime has increased by over 250 percent. In New York, while the controller workforce has decreased by 27 percent, the number of overtime hours has tripled. These figures become more important when comapred to the fact that traffic in both these areas has increased 19 percent and 44 percent, respectively, over the same time period.

S. 1184, the Airport and Airway Enhancement Act of 1987, introduced by Chairman Ford, is a substantial step in the right direction. However, the benefits to be realized from increased spending for more air traffic controllers, updated technology, and airport expansion are long-term solutions. It is important that we look closely at ways we can make the skies safer now.

Recently, the National Transportation Safety Board, in confirming that the margins of safety have eroded, recommended that restrictions be imposed on summer flight schedules. The Board's recommendation was based on historical evidence showing an increase in controller errors and near-collisions during this peak travel season. I believe this Subcommittee should take a long hard look at the Board's recommendation.

I want to thank Senator Ford, our Aviation Subcommittee Chairman, as well as the other members of the subcommittee for bringing this issue into the forefront once again. Aviation safety is a paramount concern to the public and demands the utmost attention of this committee.

Senator FORD. Senator Lautenberg, you may proceed.

STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM NEW JERSEY

Senator LAUTENBERG. Thank you, Mr. Chairman, and Members of this subcommittee. I appreciate the opportunity to be with you in pursuit of a safe air traffic system.

All of you Members of this committee have had an interest for a long time, particularly you, Mr. Chairman, and the ranking minority member of this subcommittee. I know Senator Kassebaum for a long time has pursued a safe and efficient air traffic system and I commend her for that.

I remind all of you that at one point I was working on that side of the table in this committee, enjoyed it and encourage you to continue to pursue this matter.

The question before the subcommittee is a simple one. This summer will our skies be too crowded to be safe?

The National Transportation Safety Board, the government's watchdog safety agency recently issued a formal recommendation. In that report the NTSB warned us of a serious erosion of safety in our nation's skies.

Citing extreme shortages in our air traffic control system, the NTSB has issued an urgent recommendation to restrict flights at our busiest airports this summer.

The NTSB says this is necessary in order to provide an adequate margin of safety for air passengers. To do so otherwise they say drastically increases the risk of a "catastrophic accident.'

This is an unprecedented statement by NTSB. It should hit everyone like a cold slap in the face. But the FAA continues to shrug it off with the same old arguments, calling the problems in our skies aberrations. It is continuing to downplay or even ignore the facts that are staring us all in the face.

With all due respect to the administrator, to Admiral Engen, I can not agree with his rosy assessment of the air traffic control system.

The FAA brushes aside alarming increases in near-misses as an aberration. Mr. Chairman, that assessment flies in the face of the facts. In 1985 there were 758 near collisions. In 1986 the number grew to 839. And the first quarter of 1987 was ahead in near collisions over the 1986 pace. That is not an aberration, it is a trend and it is a disturbing trend. One that ought to disturb everybody who has some opportunity to influence change.

Despite assurances from the FAA that all is well, these numbers are ominous. In many cases the difference between a near collision and a major tragedy is only a matter of seconds. If not for the last second evasive action by pilots, any number of these near misses could have resulted in the loss of hundreds of lives.

Further, Mr. Chairman, these near collisions were once restricted mainly to general aviation aircraft. That is no longer the case. Today close to half of these mid-air collisions involve commercial carriers with hundreds of passengers and experienced crews.

Admiral Engen is belatedly acknowledging that there are disturbing staffing shortages in the air traffic control system. But in an op-ed piece that he wrote today, for this morning's Washington Post, the Admiral states, and I quote him, "that we tend to forget that FAA lost more than 11,000 controllers" in 1981.

But as the Post did, I have to ask the admiral, who is the we? Many of us in Congress have consistently implored the administration to get the full performance level controller staffing back up to par. But the administration, standing on principle, stubbornly standing on principle, has steadfastly refused to take one reasona-

ble step to accomplish this goal. Selectively re-hiring fired controllers.

Mr. Chairman, I do not have to say it though I have said it because I have said it before and I say it again, I do not want to reward anyone who broke the law whether it was in 1981 or whenever.

But the fact is that at some point the period of punishment has passed, and people should be reinstated to full rights and citizenship.

The fact of the matter, Mr. Chairman, is the FPL staffing is far short of where it should be. And unless something changes, this will be the case for the foreseeable future.

Admiral Engen also dismisses the NTSB recommendation of bringing controllers into the decisionmaking process. That shows a callous disregard for the contribution that they can make to address this serious problem.

In March 1986, the GAO released a report detailing the state of the air traffic control system. Of 3,981 controllers surveyed, 70 percent said they were handling more traffic than they should.

GAO also surveyed 886 first line supervisors. Those supervisors stated that they felt that over 2,000 radar controllers under their supervision were handling more traffic than they should be.

Yet the FAA disregards these figures. In a response to that report, the FAA dismissed those concerns as perceptions and not reality.

Today we are on the verge of seeing yet another union develop among controllers. That should send a signal to the FAA that something is wrong. There's is a discontented workforce.

Further, Admiral Engen points to significant progress in implementing the NAS Plan. Mr. Chairman, as the FAA admits, the NAS Plan is at least $6 billion and 8 years off-schedule. This is due to technical and managerial problems, not inadequate spending out of the aviation trust fund. In fact, the FAA has not been able to spend the money it has been given. Last year approximately $1 billion went unspent.

In his op-ed piece, Admiral Engen again calls for an increase in airport facilities, more runways. Well, if the swimming pool is already too crowded, then I find it hard to understand why we want to add more diving boards.

Over the long-term, increased airport capacity is going to help us. But it ignores the short-term problems cited by the NTSB. That problem is in the skies, it is not on the runways.

The FAA also points to its new Aircraft Situation Display, or ASD. The system is portrayed as an answer to many of the problems experienced today. It will play a part. But today it is a one of a kind system, no redundancy, no backup, and it cannot predict system or sector overload.

Finally Admiral Engen claims that the FAA has the situation in hand. I obviously do not agree. Having the situation in hand would mean having the capability to control peak traffic, to predict sector overload, to curb near collisions. Mr. Chairman, we are not there and the situation is not in hand.

The facts speak for themselves. In the air the number of near collisions is increasing. On the ground delays and long lines confound and confuse air travelers.

At my request the GAO recently conducted a study of the air traffic control system. The situation at 43 major facilities was reviewed. Mr. McClure, who is going to be testifying, can discuss the report in detail. That study, along with the testimony before the Senate Transportation Appropriations Subcommittee, which I chair, revealed some sobering facts.

The GAO found that although air traffic has increased significantly, severe shortages of fully qualified air traffic controllers exist at major air traffic control facilities. At the 43 facilities that GAO surveyed, only 3,800 of the 6,300 fully qualified controllers authorized were actually on board. That is barely more than half.

For instance, traffic at Newark International Airport has jumped by 58 percent since 1981. But despite that substantial increase, there are fewer full performance level controllers directing that traffic than there was in 1981 when traffic was more than 58 percent less.

In Chicago, traffic has jumped by 50 percent. Yet there are 20 fewer FPL's in the tower today than there were in 1981. These are not isolated examples. Similar situations are seen throughout the country.

Last week, Mr. Chairman, I received a report from the FAA. That report shows that FPL staffing is continuing to slide. In the month of April we actually lost two. This at a time when the FAA should be building that force with all due speed.

Of the 740 first line supervisors currently on board at these 43 facilities, 265, more than a third, are eligible to retire, and their ranks will have to be filled out of already thin controller forces.

The GAO also testified that FAA safeguards for preventing controllers from being overburdened, such as Central Flow Control, are not being fully implemented. Moreover, GAO stated, "that there are not reliable means for assuring that controllers are not faced with more traffic than they can safely handle."

The situation facing us and the NTSB recommendations are the result of the administration's failure to deal with the consequences of the 1981 air traffic controllers strike and airline deregulation in 1978.

In closing, I would note that we have two issues before us. First, a long-term solution, which would include increased capacity, better spending out of the trust fund, more controllers, and getting the NAS Plan back on track.

But there is a short-term problem that we all are aware of, and that is this summer's peak traffic period. And that is what the NTSB is talking about. And that is what we have to address today.

The summer air schedules go into effect, as you noted, Mr. Chairman, on June 1. That is next Monday. After reviewing the information, I have got to agree with the NTSB findings.

I do not like that solution. I really do not. Because this country depends on efficient, safe air travel. Our economy is virtually based on that. So it is a very significant step that we would be taking. One that might retard economic progress.

But after reviewing the information, I have to concur with the NTSB findings. The expected air traffic increases this summer will likely pose a challenge that the system is just not going to be able to meet.

Their warnings have to be heeded. Our air traffic control system is not up to par. The numbers show that we are flirting with disaster. Changes must be made. But in the short-term our choices are limited.

The air traffic control system in our busiest corridors can not handle more traffic. Until the system can, traffic in those corridors must be restricted. If we are serious about protecting the flying public that appears to be the only alternative.

By outright rejecting the NTSB's findings or recommendations and without consulting the Congress, it is FAA and the administrator who is preventing the meaningful dialogue.

I thank you, Mr. Chairman, for the opportunity to appear before you and the committee, and if there are any questions I would be pleased to try to answer them.

Senator FORD. I do not believe there are any questions, Senator Lautenberg, from your colleagues here.

We do thank you for your statement today, and we thank you for your dedicated interest in this real problem. We look forward to working with you and your subcommittee in the future to try to develop something that we would consider adequate.

The next witness will be the Hon. Don Engen, Administrator, Federal Aviation Administration. You have a full plate I am sure that you want to deliver to us today, Admiral. We will not turn the lights on. Just let you have at it.

STATEMENT OF HON. DONALD D. ENGEN, ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION

Admiral ENGEN. Thank you, Mr. Chairman, very much. I appreciate it.

I have submitted my statement for the record. I would let that stand and give a very short opening statement.

Senator FORD. Your total statement will be included in the record as if given.

Admiral ENGEN. Thank you, sir. I do welcome the opportunity to be here before you, sir, as always to discuss with you the status of the air traffic control system.

Much focus continues to be placed on the safety of our air traffic control system. Unfortunately, in my view, the tone of too many of these reports suggests that the margin of safety is rapidly eroding and that the system is on the verge of collapse.

Well, this is simply not the case. I do wish to emphasize that in aviation you always must work to achieve improvement in safety. There are challenges that we must face today and tomorrow.

In fact, it is this hard work by all of us in the aviation community that made last year one of the safest years in aviation history. While it was safe, we cannot and we will not relax one iota.

There are more things to be done. And while I may not like them, I welcome the remarks of the National Transportation Safety Board and the GAO. I believe that the views expressed by

those organizations help us look at our system, and I will give honest and full consideration to their comments.

I can not deal in rosy assessments. While I may say that the system is working well, that does not mean that we do not have problems out there that are not being solved on a day-to-day basis.

Rosy assessments are not on my plate. But I really do believe in making sure that we have the safety, the daily safety of our system functioning as it should. And, indeed, it is but there is much more to be done.

The air traffic system is providing the airlines and the general aviation people who fly out there the means to fly safely under positive control, and the daily numbers of flights are higher than we ever had before.

The daily aviation traffic count has risen mostly as a result of new concepts in airline scheduling to meet passenger demand in the deregulated environment established by Congress in 1978.

This has been accomplished to date with improved operational efficiency and reduced accident rates. Pilots and air traffic controllers have worked closely together to keep the safety of the system paramount.

Looking back over the last year and in trying to address problems before they really become problems, it appears to me that much of the concern which has developed about the air traffic control system has been generated by complaints such as long waits in crowded air terminals, lost luggage, insufficient smoking or non-smoking seating, overbooking, and by the number of delays that air passengers are experiencing today.

These delays have simply been too many, and have proven to be an inconvenience to each and everyone who travels by air. Commercial aviation delays are caused by weather, limited airport capacity, airline scheduling practices, airline maintenance, air traffic control procedures and other factors.

Weather alone accounts for about two-thirds of the system delays, and about 5 to 10 percent of those delays are attributable to the air traffic system.

Now, rather than describing in detail our efforts to counter air traffic delays this summer, I am enclosing as an attachment to my prepared statement a brief paper I recently provided to Members of Congress.

This paper outlines a six point program which is intended to keep delays significantly below the levels they might otherwise be this summer.

The program, we are engaged in, includes the Expanded East Coast Plan, enhanced flow control capability, new computers at our en route centers, a new and still-being-developed Aircraft Situation Display, airline schedule adjustments, standardization of in-trail aircraft separation, and an increase in our air traffic control workforce.

Following my statement I would be pleased to go into any of these details further, sir.

The Aircraft Situation Display is an automated program being developed, which enables us to monitor air traffic levels throughout the country. We are now able to see at a glance on one monitor

all aircraft operating under positive control within the domestic United States.

This data is updated every five minutes. While this is strategic and not of a tactical nature, this program enables us to identify each aircraft by such features as departure and arrival airports, the operator, type of aircraft, and the specific air traffic sector in which it is operating.

Thus, for example, we can ask the computer to display only aircraft whose destination is a particular airport and all aircraft operating under air traffic control which are headed for the airport that will be displayed.

Now early this month we asked all of our domestic air traffic control centers to provide information concerning those air traffic control sectors which are a concern now or had the potential to be of concern this summer.

That effort resulted in about 100 en route sectors out of 652 being identified. We are now analyzing and seeking to validate the information received concerning those sectors. With our Aircraft Situation Display we are going to have the capability to monitor workload in designated sectors.

This monitoring will enable tactical and strategic solutions to sector capacity problems in real time. Our traffic management specialists will re-route aircraft around affected sectors or may delay departures destined for sectors approaching those levels which we feel are capacity restricted.

In short, Mr. Chairman, our flow control provides us with the capability to monitor traffic levels and to make dynamic decisions to deal with potentially excessive traffic levels. It does not work perfectly, but recent improvements have given us added ability to deal more effectively with peak traffic periods.

I can assure you that while we have high confidence in the capabilities of Central Flow Control here in Washington and in our individual traffic management units located at each of our domestic centers, we will continue to monitor traffic levels in order to anticipate the needed system's response to those levels.

In closing, Mr. Chairman, I would like to stress that we are deeply aware within the FAA about the ever-present need to improve the air traffic control system. There are aspects of the current system which we all recognize need continued emphasis.

Controller staffing and training; implementation of the key NAS Plan systems that will facilitate the controller's job; refinements in our air traffic control procedures; airspace management; and reductions in air traffic delays.

We are working actively in all of these areas not only to address the identified needs, but to identify additional areas that need further improvement.

We look forward to the continued assistance of the Members of this subcommittee in helping us to meet our safety responsibilities to the very best of our ability.

Sir, that completes my prepared statement. Mr. Chairman, I would be very pleased to respond to your questions.

Senator FORD. Thank you very much, Admiral. I appreciate you filing your statement and being brief so that we can get to some

questions that are I am sure bothering many of us here in the Senate.

Admiral, you expressed some surprise, I think, that there is a concern over the margin of safety, calling some unnecessarily "alarmist," I believe.

Yet, with the continued increases in mid-air collisions, near misses, and controller errors, should we not be somewhat alarmed? If we should not be alarmist, shouldn't we be at least be somewhat concerned about what is going on?

Admiral ENGEN. Yes, sir, Mr. Chairman. I am concerned as well, and I do monitor near mid-air collisions and operational errors as well as pilot deviations on a daily basis.

Let me address the area of near mid-air collisions, if I can. I established, over a year ago. an inter-agency task group to study near mid-air collisions. The task force has met three times, to date.

We studied NMACS very carefully. The increase in near mid-air collisions in 1986 over 1985 was of direct concern to us. We looked at that and found that the majority of the increases were in the no-hazard category, that which were reported but were really not considered near mid-air collisions.

The near mid-air collisions that continued in the critical and the next category, which is the——

Senator FORD. Admiral, would you describe, and I apologize for interrupting you. But would you describe a no-hazard near miss?

Admiral ENGEN. Yes, sir. First of all, all near mid-air collision reports are not near mid-air collisions, sir. Each must be evaluated to determine what category it is.

The no-hazard category is when nobody took any action, that they would not have passed within the distance that defines the near mid-air collision.

We seek people to report these near mid-air collisions. We want to evaluate them. But they are not termed as a near mid-air collision, sir.

Senator FORD. What is the distance that you refer to?

Admiral ENGEN. It can be as high as up to 3 miles. Generally, it is a mile or half a mile, something like that. It varies.

Now, critical is within 100 feet.

Senator FORD. What about 500 feet?

Admiral ENGEN. That is a near mid-air collision.

Senator FORD. I had a pilot tell me one time that while he was flying a small aircraft, a 747 come within about 2,000 feet of him. We thought he had been hit.

Now if he reported that as a near-miss, would you say that was nonhazardous?

Admiral ENGEN. Any time a pilot has a near mid-air collision and believes he does, we investigate it, sir, and if it is indeed a near mid-air collision and feels it is, it is going to be one.

We do not argue with people about that. The no-hazard category is clearly not a near mid-air collision. People do not argue about them, sir. In that particular instance you gave, I believe you that——

Senator FORD. You would call that a nonhazardous near miss, or a reported near miss that was nonhazardous?

Admiral ENGEN. What was the distance, sir?

Senator FORD. About 2,000 feet, and a 747 went over this smaller aircraft.

Admiral ENGEN. No, not necessarily. I think that could probably be categorized in the second category.

But to come back to the figures, sir, we look very carefully at these to ensure that we are taking proper action to prevent them in the future.

The reason we have TCAS now, the reason that we have Traffic Collision Avoidance System, is because of the near mid-air collision hazard. The reason that we are changing our rules to require all aircraft flying in the terminal control areas to have transponders and to have altitude encoding is because of near mid-air collisions.

The reason that we are changing the shapes of some of our TCAS is because we have near mid-air collisions. The point I want to make, sir, is that we must deal with these and I do not want to paint a rosy picture, but I am not concerned that we do not have the means to prevent near mid-air collisions.

I think we do have the means to prevent near mid-air collisions.

Senator FORD. Admiral, you stated that it is not necessary for the FAA to reduce flights this summer, yet according to your statement the flow control computers cannot currently predict where traffic problems will exist, leaving the controllers in a responsive mode.

During the peak summer travel months, especially in light of the continuing problems which you admit of near misses and controller errors, do you think this poses a threat then to air safety.

Admiral ENGEN. First of all, Mr. Chairman, I want to assure you that we reduce air traffic today on a daily basis.

As you and I are sitting here, sir, we are reducing the flow of air traffic.

Senator FORD. How are you reducing that?

Admiral ENGEN. Through Central Flow Control, and requiring people to remain on the ground until there is ample space in the airspace to fly directly to their destination without airborne holding.

And we literally today do that. We are going to do that this summer. We are going to ensure that the system does not become unsafe.

I think I was probably mischaracterized a little bit in the headline in this morning's paper. I do believe, first of all, that the NTSB has called to our attention a problem out there.

We have known this before. It is not something new, and I want to acknowledge that. But I want to say, sir, that we have the means at hand today, now, and we are using them to control the flow of air traffic.

And we will do so, sir. I will not let this system go critical.

Senator FORD. I believe FAA plans to use traffic management specialists to determine traffic flow and route patterns.

What does a traffic management specialist do? Where are they located? And how will they know when to restrict flights?

Admiral ENGEN. Mr. Chairman, we have approximately 250 full performance level controllers who are termed as traffic management specialists.

They are located in units at en route centers and in Central Flow Control to monitor the flow of traffic in real time; to interface with Central Flow Control in real time; and to monitor the flow of the traffic out there.

When an air traffic controller on a board begins to feel that there is increasing traffic and becomes concerned, it is his or her responsibility to report that immediately to his supervisor.

That goes to the traffic management specialist. Supervisors stand back and watch this, and they can see this probably before the individual air traffic controller can see it.

And supervisors will pass this to the traffic management specialist. That unit, in real time, passes this to Flow Control in Washington, DC and Flow Control sets about the re-routing of traffic in order that we do not overcrowd the sectors.

Senator FORD. Once a supervisor is looking over the shoulder of a controller, determines that a change needs to be made and they start the chain of command, how long would it be before that change is made?

Admiral ENGEN. It can be almost instantaneous, sir. If it is a matter of an adjacent sector, the supervisor would just lean over and solve the problem with the adjacent sector.

If it is forecast to get larger, it may very well be that Flow Control is going to have to require that we not allow some airplanes to take off in St. Louis, for instance.

Or, alternatively, if this person was in the Chicago Center and he was receiving too many airplanes coming off of Chicago O'Hare, the supervisor would call directly to Chicago O'Hare and say, slow down.

Give me 15 seconds per airplane, or give me some daylight between these people. Give me more space. So almost instantaneously people respond to overcrowding.

Senator FORD. In the report it released this month, the GAO identifies various towers and en route centers that were staffed well below authorized levels for controllers, for supervisors and traffic management supervisors.

Yet your agency maintains that the air traffic control system is adequately staffed. If an air traffic control facility is below the authorized staffing level, how is it possible to tell if there are enough people?

Admiral ENGEN. I think we are probably talking about terminology, Mr. Chairman. I want to assure you that I do not feel that the air traffic control system is yet adequately staffed, as I would like to see it.

It has been a disappointment to me that we have not been able to bring on board more FPL's. But we are making progress. What is important to understand is that at every scope, at every position in the air traffic system, sits a qualified person to conduct air traffic control.

Now that is very important to recognize. That drives another problem for the FAA, which is one of overtime. And We do have two level 5 terminals and seven en route centers whose staffing levels are below that which we want to have.

That is our problem which we are trying to solve in real time, sir.

Senator FORD. If you have a lot of overtime, does that not indicate that your controllers will be working longer hours, become tired, less alert, and more prone maybe to making a mistake?

Admiral ENGEN. I think the simple answer to that is, yes, sir, and it is something I think we need to watch very, very carefully.

That is why we have supervisors standing behind air traffic controllers, and that is why we require that whenever this condition begins to exhibit itself, we can split the sector or bring in somebody else or route some of the traffic off. It is of concern.

Senator FORD. Admiral, we have a vote on. I am going to run over and vote and turn it over to Senator Kassebaum. She will be the next to ask questions.

Hopefully I can get back and our hearing will not be interrupted.

Senator KASSEBAUM (presiding). Admiral Engen, let me reiterate again that I think the Flow Control System that you have initiated is proving to be successful.

I hope that you will remain firm in your resolve to make sure that it is held in place. I personally would rather be held on the ground than circling in the air. In a way, of course, this is restricting the level of flights available.

I would like to ask you about the feasibility of the travel advisory, because I think that you know weeks ahead, as a matter of fact, that if at 6 o'clock at a certain airport there are only 90 spaces available but there are 100 flights scheduled in a 6 o'clock, that there is going to be a crunch.

At that point, why can't the traveling public be advised that as a matter of fact they are going to be held on the ground for, say, an hour or so until there is space available?

It seems to me that there is a real problem here with honesty and with providing information to help the traveling public to understand.

Admiral ENGEN. Senator, I think that that can be explored and it can be done.

In a sense that is done in that you would take your delay and not come from your home to the airport, because there is going to be an hour's delay when that hour's delay might be 30 minutes.

Senator KASSEBAUM. But when they purchase a ticket, should they not be told that on the whole there has not been space available at that airport, and that they could well suffer a considerable delay because they will be held on the ground until space is available?

Admiral ENGEN. Yes. I agree. I might add, when I travel this summer as a passenger in an airliner, if I were going on a vacation it would be wise to fly in the off-hours.

It would be wise to fly in the middle of the day. Not at 8 o'clock to 10 o'clock in the morning or 4 o'clock to 6 o'clock in the evening. It would be wise to fly on the weekends.

People, I believe, can help themselves who have discretionary travel, who do not have to travel except to and from a place of vacation.

Senator KASSEBAUM. Secretary Dole has gone to great lengths to try and urge the airlines to get together and address some of these problems, and even has suggested a fine, has she not, if they do not comply?

Admiral ENGEN. She has, and that is under her purview, where I take responsibility for safety.

Senator KASSEBAUM. In speaking of additional air traffic controllers, you mentioned of course that the workforce has been increased by I think 800 controllers during 1986. As you know, the committee has approved legislation adding 1,000 controllers.

I would like to ask you what effect you think adding 1,000 controllers would have on the individual workload and on the safety of the system, if we could add 1,000 controllers in the next 2 months, a suggestion which is not realistic?

Admiral ENGEN. Unfortunately, to add 1,000 controllers I will have to advertise and receive about 100,000 responses, and then it would go through the integrative process of coming down to 25,000 people and down to 5,000 people and down to 1,000 people. It is a very long process.

To address specifically what you say, Senator Kassebaum, let me say that we could accept those air traffic controllers, provided that there were added monies, not only for the air traffic controllers themselves, but for the added supervisory personnel who must oversee them.

We could accept it if there were an increase in the totals of the FAA. In the past sometimes we have had this gratuitous, support, I do not want to call it gratuitous, this support, without increasing the total numbers of the FAA.

In doing so it brings a compression and I must look at inspectors, and take away inspectors jobs in order to make air traffic controllers. So if in the wisdom of the Senate you wish to do something like this, I would ask——

Senator KASSEBAUM. You really have to have the funds to meet the requirements.

Admiral ENGEN. The money and the total number of jobs in FAA, as well as just air traffic controllers.

Senator KASSEBAUM. Thank you, Admiral Engen. I know Senator Stevens would like to ask a question before we go vote.

Senator STEVENS. I would like to know, is there some discretionary area in terms of the priority of flight departures?

Can your people at each airport determine who takes off first, or is it just first come first served based on the flight plan filing that is going to determine the delay?

Admiral ENGEN. Actually, the schedules are there, and people file their flight plans, and those flight plans are known. They are put in lines to await their turn to take off.

I myself have waited in lines as well. It depends on the direction of flight. Somebody might get off real fast if they are going northeast. And somebody going northwest might be behind a long line of people going to, say, Chicago.

So it does vary. But we try to maintain the priority, so that one airplane does not take all the delay.

Senator STEVENS. Your plan, then, is destination delay oriented. It looks to the congestion at the destination of the first stop of the flight as it leaves the field. Right?

Admiral ENGEN. Yes, sir. It is. And you know, that is where we have our main problem.

Senator Lautenberg did not speak as forcefully about the need for airports as I feel. I would like to make the point that our true problem in the system today is literally in some key areas in these United States that we do not have enough airports.

Once we wake up to that fact and once we build those airports in major cities, our delay problem will be a long way toward being solved.

Senator STEVENS. Well, in my state in the summertime, you know, hundreds of thousands of people fly north to visit.

They are coming from all over the country, and one of the worst things that can happen to our tour industry is to have people delayed overnight unexpectedly. Now it seems to me this system is not going to take into account the long flight.

We fly from here to Atlanta and then to Seattle and then to Alaska now, whether you know it or not, as part of one flight. But long haul non-stop flights are a lot better than multi-stop flights under the procedure that you describe.

Because if we were to go from here to Chicago, then Chicago to Seattle and then up to Alaska we have got a chance for two delays, either one of which could result in missing connections and missing hotel accommodations.

I am worried about the impact of this on the tour business, and people who are traveling on what we call package tours in the summertime. Have you considered that?

Admiral ENGEN. The simple answer, no, sir. And I do not want to be flip about that.

I want to assure you that we are talking about two things. One, we are talking about the choice of the passenger to pick the route that he or she wishes to fly.

Two, we are talking about the operational necessity to slow down the system in order that we do not have too many people in the system at one time.

I would like to say, sir, that the longer the flight, particularly the long distances that you make, and that people would make to fly to your State, if people could fly longer distances it is going to save them time.

The shorter flights, the more apt they are to experience delays for whatever reason.

Senator STEVENS. That is one of the difficulties we have when we have to make the connections we do going across the country.

The thing that bothers me is that if we have a whole series of people file short flight plans into Chicago, we are liable to be delayed going from Seattle to Chicago to Washington, although those short flights last only half an hour.

We are flying five and a half hours on top of another three and a half hours. I do not think your plan is time-sensitive at all.

Admiral ENGEN. Well, we have got consumer passenger concerns about being able to get from A to B, and we have safety concerns to be sure that that passenger riding in whatever airplane he or she is in, can do it safely.

Senator STEVENS. And I respect that. But you are talking about destination density, in terms of landing patterns. Right?

Admiral ENGEN. Yes, sir.

Senator STEVENS. But, you have some control over that in the original instance. Do you not?

Admiral ENGEN. Yes, sir.

Senator STEVENS. In approving some of those short range flight plans.

Admiral ENGEN. That is why Flow Control is in being, to be sure that we meter the flow of traffic so that the destination, whether it is short or long, does not become overburdened.

Senator STEVENS. Tell me, how is that going to slow down those short range flight plans that are filed into O'Hare, going in from anywhere in the Midwest and effectively slowing down transcontinental traffic?

Admiral ENGEN. Each must take its turn, sir. O'Hare can accept, let us say, 154 operations per hour. If you come up to the point where there is 156, two people are going to have to slide into the next hour.

I would like to say that we give due thought towards the person who is traveling the longest. But in actual fact we do not have that ability, and we are looking only at that person going to Chicago O'Hare.

Senator STEVENS. Thank you very much. I may pursue this with some correspondence with you.

Admiral ENGEN. Yes, sir.

Senator MCCAIN [presiding]. Well, Admiral, it is just the two of us.

I would like to begin by again expressing to you my appreciation. I know you are leaving the end of your stewardship in this very difficult task.

I believe I share the views of certainly the majority if not all of the members of this committee of the fine job you have done.

I think when we look back historically at the enormous explosion of air traffic that has taken place in this country and the challenges in that dramatic increase during your tour, that you handled these very difficult challenges with great skill.

I want to apologize if my questions are redundant for those that may have been asked while I went over to cast that crucial vote.

First of all, Admiral, I have been reviewing the statements of the witnesses who will follow you. As I am sure you are aware, there is a distinct difference of opinion about the status of the air traffic in this country today.

I would like to give you an opportunity, perhaps, to respond to some of the statements, or allegations, that are made by the other witnesses.

To start with, I would like to start out with your statement, where you said, recent improvements have given us an added ability to deal more effectively with peak traffic periods. I can assure you that we have high confidence in the capabilities of our Central Flow Control Facility.

Yet, Mr. Burnett, in his statement says, the number of controller operational errors has increased 20.9 percent. The recent increase contrasts sharply with the general reduction in operational errors during 1985, 1986. We understand the early second quarter figures indicate a reduction to a 10 percent increase over 1986.

He goes on to say that, the number of runway incursion incidents caused by controller performance deficiencies have increased by nearly 50 percent, and he describes other increases in the indicators we have of impending collisions or accidents.

Could you comment?

Admiral ENGEN. Yes, sir. I would be very pleased to. I believe the Safety Board and the Administrator of the FAA view the system from two separate positions.

We are both trying to do the same thing. We each want to have safety in the system. We want to improve that.

When you address operational errors as you just gave to me, that 20.9 percent figure, I find also that in the month April and to date in May that we are actually decreasing or running at about the same level as we were in 1986.

So what you are seeing are some perturbations in near-term that are very apparent. If you look at the operational error figures for the 2 years, I think you are going to find that they are tracking not dissimilarly.

I am looking forward to the summer, to see how they track again. I do not want to make light in any way of what the board of the NTSB has said. I want to work with them. I want to be sure that we are speaking from the same script, or at least from the same database.

As the person responsible for that system out there, I find that the operational errors do vary, and the errors that were cited by the Safety Board for the first quarter are not coming true for the second quarter.

So you need to really look at this.

Senator MCCAIN. Your response is that in the second quarter we are seeing a rather substantial decline in these reported——

Admiral ENGEN. Yes.

Senator MCCAIN [continuing]. That would relate to mid-air collisions or runway incursions?

Admiral ENGEN. Runway incursions are flat down 11 percent for this year. The runway incursions, since January 1, are down 11 percent from 1986. That is one area in which we are making headway, and very properly so.

As you know, Senator, it really is learning to dance together. Pilots control errors just as controllers control errors. I think that we have a handle on runway incursions. At least it is going in the right direction right now.

Senator MCCAIN. Admiral, in your statement you extol the virtues of the Aircraft Situation Display, describe it, and then you say, this program further enables us to identify each aircraft by such features as departure and arrival airports, specific air traffic in which it is operating.

We can ask the computer to display only aircraft whose destination is a particular airport. And you go on to say how this has enhanced our ability. It says, our Aircraft Situation Display will have the capability to monitor a workload in designated sectors.

Mr. Burnett, on the other hand, in his statement, says that the Safety Board staff and some of the members have been briefed on the FAA's new Aircraft Situation Display, which has been developed for use in its Central Flow Control Facility.

Then he says, however, that this system still is in the developmental stage, and additional computer software and hardware enhancements are necessary before the system will be able to predict 2 hours or more ahead of time when a particular sector will be approaching saturation.

Hence, the present version is for the most part reactive in nature and lacks a predictive capability which will not be available until at least September.

Mr. Burnett, it appears, has a very different view of the capabilities of this system than you described in your statement.

Admiral ENGEN. Let me hasten to say that the Aircraft Situation Display is a system that is in development.

We have been working on this now for some time, and it was not until last year, in the fall, that we really began to make headway, and I set aside the moneys necessary to develop the program.

It is in development, and Chairman Burnett is correct that way. But let me also hasten to say that the system that is going to give us this predictive capability is about to be tried.

I do not want to promise ahead of time that it would be before the fall, but I anticipate that we will be able to do an evaluation on this much earlier than that. I do not want to make a promise here because that will be something that I want to be sure that we can meet and do.

But the ASD is a developmental program. A very fine one of great impact, strategically. Not tactically. May I say, sir, that we must rely on the expanded East Coast Plan. We must rely upon our continuing efforts to enhance flow control.

The new computers, for instance, the host computers that are going in at our centers are also going to have somewhat of a predictive capability that is not in the 90–20 computers out there right now.

We need to use a whole panoply of indices to be sure that we do not drive the system critical. I am not counting solely on the ASD, the Aircraft Situation Display.

Senator MCCAIN. Well, is the GAO statement accurate when it says that the system will not be fully operational for several more years because of limited computer capacity?

Admiral ENGEN. Are they referring to, what?

Senator MCCAIN. It says, the existing flow control program is designed to control aircraft departures and en route flows based primarily on weather conditions and capacity at arrival airports, rather than controller workload at the centers.

Moreover, FAA estimated at that time that the en route sector loading program intended to predict overloads in specific en route sectors and alert flow control will not be fully operational for several more years.

Admiral ENGEN. That is what we call our E Load program, Senator, and I believe that we are continuing to develop this.

The Aircraft Situation Display has come along subsequent to that and is offering us a near-term way to strategically forecast sector loading. And I believe it offers a new opportunity.

Senator MCCAIN. The GAO alleges that the FAA "safeguards to preclude ATC system overload around Chicago boiled down mainly to depending on controllers to make individual judgments about

how much traffic they could safely handle on the basis of their own professional knowledge, experience, and skill."

Is that an accurate depiction of the extent of the FAA safeguards at Chicago?

Admiral ENGEN. Yes and no. But let me say, yes, and then parenthetically say that the supervisors and managers who are monitoring the individual controllers provide that safety.

This is a man-driven, person-driven system, which relies upon the judgment of human beings. We task the air traffic controller with the responsibility, so that he or she will say when they have too much, or if they see something wrong out there.

We are using the evaluative capability of the human being to determine the local control, if you will, of those sectors. We do not want to do that from Washington, DC. We would use the ASD, the Aircraft Situation Display strategically, so that we could flow traffic in smoother.

But we would not use it to control individual sectors across this Nation. We must rely on the individual.

Senator MCCAIN. Admiral, the inference you would get from this statement was that the only "safeguards" that you are using is the judgment of the air controllers.

Do you reject that?

Admiral ENGEN. No, I do not reject that. We use every safeguard we possibly can.

Senator MCCAIN. Then you do not accept that.

Admiral ENGEN. But there is a supervisor backing him up, people make that determination, controllers, supervisors, and managers.

Senator MCCAIN. NTSB recommended FAA solicit controller views in line with what you are saying, as well as analyzing pertinent data to identify critical sectors, establish criteria for maximum safe traffic density in critical sectors and develop a means for predicting periods when traffic levels might approach or exceed safe limits.

Are you doing that at this time?

Admiral ENGEN. Yes, sir. We are. In my opening statement I said we have 652 sectors. We, using a predictive capability, came up with 80 of those 652 sectors, which we felt were critical and we should look at closely with respect to national traffic.

We went out to our air traffic controllers and asked them at every en route facility, what do you think about this. They came back with 100 sectors. We added the extra 20 in there.

They identified the 80 that had been identified here, as well as adding 20 more. So we do go to our air traffic controllers. We do ask their opinion, and we do have a means of communications to accommodate their concerns.

Senator MCCAIN. Mr. Chairman, I know that I have exceeded my time.

I would be interested perhaps in the next round about the efforts we are making towards reducing the scheduling overloads. Although perhaps that is Secretary Dole's purview more than yours.

Let me ask finally the $64 question here, Admiral, and that is that we have two organizations, one, the GAO, the other the Na-

tional Transportation Safety Board on one side of this issue. And yourself and the FAA on the other side.

You very clearly make your argument and I think with some cogency that there is not a requirement for reducing the number of aircraft that will be flying the continental United States during this summer, even though we anticipate I believe somewhere around an 8 percent increase in air traffic.

The other two organizations, the General Accounting Office and the National Transportation Safety Board take the exact opposite view. They believe that in the interests of safety, numbers of flights should be reduced. I would suggest that you are taking a pretty big gamble or risk in your assessment but that is an aside here.

We have got two organizations on one side whose task is to give the Congress of the United States and the executive branch certain recommendations. And we have got you on the other side with the experience and talent that you have at your disposal.

How do you reconcile these two diametrically opposed points of view, and how are we supposed to, in our positions, reconcile those differences?

Admiral ENGEN. Senator, let me say first of all that I do not believe that the NTSB, the GAO or the FAA have differing views, with respect to the need to reduce air traffic flow.

My point, sir, is that we are doing that today. We will reduce as necessary. If anybody quoted me as saying we are not going to reduce, that is not really what I said or how I said it.

I said that we are reducing air traffic control in real time, in a tactical sense today to be sure that the system does not get overloaded. What I have resisted is just a blanket reduction out there, because somebody has a feeling that we have got just too many airplanes out there.

The way to achieve safety, true safety, is to take every airplane and put it in the hangar and lock the hangar door, and everybody go on the train. We can not do that.

And yes, my neck is out a million miles. I am an operator. I have spent my entire life flying airplanes, as you have. There is hazard to that, but we must ensure that there is the free flow of air commerce out there.

And please, sir, do not think that I am saying we ought not to restrict the flow of traffic. I am saying, we will restrict the flow of traffic. I am saying that we will not allow the system to go critical. And whenever that is necessary, I will step up and do that.

Senator MCCAIN. Then, what you are telling me is that you are not in disagreement with the other two organizations.

But they may come up here and say, they are in disagreement as to the measures that you are taking, and to the degree or the amount of reduction that your measures will reduce the air flow.

Is that an accurate statement?

Admiral ENGEN. Yes, sir. It is. I think they view it differently than I.

Senator MCCAIN. Thank you, Mr. Chairman.

Senator FORD [presiding]. Senator Exon.

Senator EXON. Mr. Chairman, thank you very much. Admiral, welcome and I will be brief so we can move along.

Do you regularly fly on commercial airlines?

Admiral ENGEN. I regularly fly and, fortunately at this time my schedule is such that I get to fly in an FAA airplane.

But I can say that I regularly fly on airlines. But not as much as I have in the past.

Senator EXON. When was the last time you were on a commercial airline where you had to go from point A to point B and then change planes and get on another airplane at point B to go to point C?

Admiral ENGEN. Last fall, I believe.

Senator EXON. What is that?

Admiral ENGEN. Last fall.

Senator EXON. May I suggest it would be a good idea, and I know how busy you are, I am not saying this facetiously, but I think it would be a good idea from time to time if you would get out there and get a feel for what is going on. This is not criticism.

I am just a typical air traveler. I came back Tuesday, and after I got to Washington National I had to wait 2 hours and 15 minutes for my bags to arrive. Fortunately, they arrived. That was more of a surprise than anything else that they showed up. But they did.

Those of us who travel regularly, I think, are experiencing the same total frustration as the traveling public. That leads me to my next question.

The Secretary of Transportation has made some statements recently in warning to the airlines that unless they could improve their overall service that some appropriate action would be taken by the Department of Transportation.

Did the Secretary discuss that with you before she made that recent statement? And what, if anything, has been done to carry out her threat?

Admiral ENGEN. Senator, I am not trying to be smart. You would have to ask her that.

But yes, we have discussed it, and we were aware of it. And it is in support of the consumer oriented problems that have developed in the system out there, and she is working to manage that.

Senator EXON. I have said many times, I want to say it again now, since I have been involved in this for a long, long time.

I think that we have the safest air traffic system in the United States of anywhere in the world. And I know you have been working very hard to improve it.

But now having said that, I want to go on record once again saying, I am just as convinced that it is not as safe as it could be or should be. We must however, make the proper moves.

On April 18 in this very room we had a hearing on this subject of overall safety, and at that time Dr. Carl Palmer and Mr. Cotton with the GAO, who have looked in this and who are experts, responded to my question, "do you feel as experts in this area, with considerable expertise, that you are as safe flying into O'Hare National Airport, just to use one example today, as you were a few years ago?"

And each one of them said, well, speaking personally, no, I do not. Do you feel, if you were to fly this afternoon into O'Hare airfield, would you feel as safe going into that high density area as you would have had you flown in there 6 or 8 years ago?

Admiral ENGEN. Yes, sir, Senator Exon. I would indeed. Let me answer that.

I do ride in airlines and I will early next month be going airlines. I fly in the cockpit for a while. I talk to flight attendants. I am interested in cabin safety.

But Mr. Palmer and Mr. Cotton, who I do not know, I do not know if they are pilots or not, I do not know how often they have personally flown airplanes into Chicago O'Hare, but I have. And I do on a relatively regular basis.

I have no qualms whatsoever about the ability of the system to provide safe separation, and it is a very, very busy airport. Probably the greatest problem you will have is after you land and try to figure out how to taxi from A to B.

It is very complex. But I have no qualms about flying in there, sir.

Senator EXON. From your conversation with the Secretary of Transportation about what actions the Secretary might take to back up her well-sounding words with action, what do you think she may have in mind in that regard?

Certainly, if she was going to get into the matter of safety, which ties in with the convenience of the traveling public, she would certainly go to the head of the FAA, it would seem to me, and see what the head of the FAA would recommend.

If this afternoon the Secretary would say, "We have got to do something to improve this situation that I made a statement about a couple of weeks ago. I want your recommendations as to what steps you would recommend that I take." What would you say to her?

Admiral ENGEN. Aviation safety, is within my purview, sir. I am interested in consumer orientation, because it is kind of a measure of the airline and how it is providing service to the public, and it is a measure of how they are complying with FAA orders.

I would defer to her those matters which are consumer-oriented. If she asked me about safety in the system, I would inform her that the system is indeed operating well.

We have problems. We have a shortage of full performance level qualified controllers out there. But there is a qualified controller at every port, or every radar scope. And we may be working harder in some areas than in others, but the system is functioning as it should, sir.

Senator EXON. Then what you are saying is that you have no qualms whatsoever about the overall quality of our air controller system today?

Admiral ENGEN. I am sorry if I conveyed that. No, I have qualms. I always do. Administrators deal in problems. I would not have a job if things were not wrong out there.

I am not satisfied with the system, but what I am saying is that we are operating it safely, we are dealing with the shortages. We have problems. I have problems. Daily problems that I must deal with.

As soon as I walk out of here I am sure that there will be something that I must do. So please do not think of me as saying all is sweetness and light and rosy. It is not. There are lots of problems out there. But it is safe.

Senator EXON. Well, what would you suggest that we do that we have not already done to make the job of the new Administrator easier than what you have had?

I ask specifically of the fact that we have all of this congestion in airports today. After you get on the ground, safely or otherwise, there is baggage lost, there is inconvenience.

The airlines I find, regardless of how much their airplanes are delayed, they get the flights off of the ground as close to schedule as possible so that many of us miss that other connection.

So that means, if you are a few minutes late because of the delay of the airline, you are going to miss your connection.

It seems to me that with the lack of facilities at airports today, coupled with what we should be doing in air safety and certainly with air controllers, we should be spending more money.

If there is a super disgrace today, in my opinion, it is the fact that we have over $5 billion in the aviation and airport improvement trust fund. It is not being spent.

I do not believe that you as the FAA Administrator even requested that more money be spent than what you got. Or did you?

Admiral ENGEN. A lot of questions there. If I could start at the front, sir.

I do not think you can make this job easier. It is a good job. I have enjoyed it. It is challenging. The job of Administrator of the FAA is a 24 hour a day, 365 days a year job. I could not recommend anything for my relief to make it easier for him.

I do believe that there is a severe shortage of facilities there, as you point out. Facilities being at airports. We have the navigation facilities to make the system safe and to provide the wherewithal to get from A to B out there.

But we do need more major airports in some very key areas. I think that is a given.

I personally have tried very hard to use the trust fund. I believe firmly that the trust fund is paid for by the user, it is a user fee that should be reinvested again.

I have the support of Secretary Dole in our fiscal year 1988 budget, and as we have come forward in our post-1987 legislation, we have proposed a way to draw down on that trust fund, sir, and I believe we should do that.

Senator EXON. So you got all the money from the trust fund last year that you felt that you could adequately spend in a good fashion?

Admiral ENGEN. No, sir. I did not. But that does not go to Secretary Dole. I just did not get all the money.

You know, it is a total budget. And there is give and take. And you asked me directly, I did not get exactly what I asked for. But I did for fiscal year 1988, get strong, strong support. It is there.

Senator EXON. Admiral, thank you very much for coming. We have worked together on a lot of things. I think you have worked very hard at your position.

I guess maybe if there is some disagreement I would have to say that it lies in how to spend the money in the trust fund. We have that money in the trust fund, it is not like raising taxes on people.

We have got money sitting there in a trust fund and we are not using it, and we all recognize that in many instances there is a des-

perate need. I think this is one senator that is going to say, either use that money or we are going to cut the tax off.

It makes no sense at all to keep piling money up. I thank you, Admiral, and I thank you, Mr. Chairman.

Senator FORD. Thank you, Senator Exon. We are pleased to have the chairman of the full Committee with us. Senator Hollings, do you have any questions?

The CHAIRMAN. Thank you, Mr. Chairman. Admiral, I like Senator Exon's suggestion that you try a commercial airline.

In fact, please try the one in Atlanta. I have always felt that if Sherman, rather than marching through Georgia had landed at the airport we would have won that war.

Senator EXON. I object to that, Mr. Chairman.

The CHAIRMAN. Let me ask you this now. You say you need more airports. The Committee, after a series of hearings has already voted for an additional 1,000 air traffic controllers.

We voted to expend $1.6 billion out of the Airport and Airways Trust Fund. We reported that to the floor. You have got the GAO coming up here, and they are talking about the safeguards to ensure traffic safety flow.

They do not exist at many of the control towers, and the routing centers. I hear you saying that you resist the National Transportation Safety Board recommendation about cutting back on the number of flights, because you have Central Flow Control indicating that there is congestion. Then you can re-route the traffic.

My understanding is that that equipment, that will enable the prediction of traffic, will not be available until September. And you are leaving in July. You have got this Committee nervous, on a tinderbox, so to speak.

Because we are going to find out, as we found out in the Challenger disaster and you can go right on down the list, including the Marines in Beirut. No one claimed to be, or was in charge. The process was flawed. We do not want to hear that and lose a lot of lives this summer due to the congestion.

Why do you resist so strongly the National Transportation Safety Board recommendations?

Admiral ENGEN. Senator Hollings, I do not resist strongly, and I would say again, sir, that I on a daily basis do restrict the flow of traffic out there. We will restrict the flow of traffic this summer.

The CHAIRMAN. With respect to the equipment, can you answer the question about Central Flow Control System, that is not coming on until September.

Admiral ENGEN. We have a Central Flow Control System right now, sir. The Aircraft Situation Display is in place at this time and can be used manually. The automatic predictive system will not come on until the fall.

I would not like to pin all our hopes on that Aircraft Situation Display, because as somebody so aptly brought out, it is a developmental program. Maybe the NTSB said that.

It is indeed a developmental program, but it is just one thing, sir, that we are doing in order to monitor the flow of traffic this summer to ensure that you can fly safely.

The CHAIRMAN. So you do not think they should cut back on the traffic?

Admiral ENGEN. Yes, sir. I will cut back on the traffic.
Please do not quote me as saying we should not cut back on traffic. I do not believe we should arbitrarily cut back on the traffic.

The CHAIRMAN. Well, no one is calling for the extreme that everybody get on a train and close down the airports. We are trying to be reasonable and objective here.

When we voted for 1,000 more controllers at the Committee we were expressing our concern. If you would have put a phrase on there to get them this afternoon we would have voted for that as well.

We feel like we are playing catch up. If you got 1,000 more controllers, you would be back to where you were in 1981, 6 years ago. That arithmetic tells us we are in dangerous circumstances, particularly in light of the GAO, the National Transportation Safety Board, the near misses and everything else that is piling in on us.

That is what is worrying us. And you are saying you are or not going to restrict traffic. I just do not see that very clearly.

Admiral ENGEN. Senator, I thank you very much for your strong, strong support from this Committee. It has been strong. I appreciate that.

I want to assure you in the firmest way that I can that we will restrict traffic, if that time comes and it is necessary.

The CHAIRMAN. And the time has not come, as of now?

Admiral ENGEN. The time has come to restrict the traffic in this sense, sir. We now on a daily basis move, read that as delays, we slow down the traffic from 1-hour period into another hour period.

That is metering the traffic and causes the very delays that are so bothersome to this committee and to other people. But those delays are safety at work. We are doing that on purpose to slow down the system for the safety of the air traveling public.

When the time comes this summer, as the traffic levels go up as they do every summer, we will slow down that traffic as it is required.

The CHAIRMAN. Well, very good. Thank you, Mr. Chairman.

Senator FORD. Thank you. Senator Danforth.

Senator DANFORTH. Admiral, a number of people have suggested improvements in airline scheduling proposals of one kind or another.

I have, Senator Kassebaum has, Senator Lautenberg, Senator Metzenbaum, and in previous hearings airlines have testified that they would at least be interested in working with us in that regard.

Some weeks ago, I think all of the Members of this committee signed a letter to the Secretary of Transportation asking that the Secretary not wait for Congress to enact legislation, which would simply authorize the Secretary to start a rulemaking, but that she start it right away.

I would like to ask you several questions related to this.

Do you know of anything going on within the Department of Transportation relating to a rulemaking?

Second, do you think that this kind of public information relating to scheduling is useful and that it would provide a greater degree of reliability in scheduling?

And third, do you think that one form of truth in scheduling provision or another has a more beneficial effect on the question of safety, or is this a safety issue at all?

Admiral ENGEN. Senator Danforth, that rulemaking is under the purview of the Secretary herself and the Department and I am not aware of where the staff is in casting that rulemaking.

I do know that you have strong, strong concern and support on the part of the Secretary. I do feel, on point one about the rulemaking, that it would help the entire system. I believe that it would—truth in advertising is a very meaningful commodity.

I believe that if airlines are required to do that, they will become more compliant with the Federal Air Regulations. So it has a connotation to help the throughput of the system.

Making that information public is useful to my personal point of view, because I believe, as some airlines have volunteered to do, that it would be salutary. I honestly believe that we as passengers on airlines would get better service.

Finally, whether one form or another would be beneficial, I would like to think that if the airlines could publish their on-time reliability that that kind of information would probably drive people to more truthfulness in advertising, if you would.

But once again, you must realize that it has a peripheral, but important, safety function. It is not under my purview directly.

Senator DANFORTH. What would be the safety function? How would it relate?

Admiral ENGEN. I think if we can get people to maintain schedules, if we can get vice presidents of operations as opposed to vice presidents of marketing to establish schedules, that we then begin to have a more orderly progression of air traffic.

It kind of backs in a little bit. Each little bit is supportive. I would like to say this, sir. I find the airlines to be very supportive of the FAA and in trying to meet the Federal Air Regulations. Since we have embarked upon our national aircraft safety inspection program, they have indeed, all of them, been very desirous of meeting the Federal Air Regulations. They're in compliance.

Senator DANFORTH. Thank you, Admiral.

Thank you, Mr. Chairman.

Senator FORD. Senator Kasten.

Senator KASTEN. Mr. Chairman, thank you.

Admiral, am I correct when I said, as I did in my opening statement, that the airline system today is lucky; that in fact a number of indicators would lead us to think that we are becoming more and more likely to have a disaster, particularly the fact that near-misses are up 11 percent from 1985 to 1986?

Am I right that we are not safer, we are just luckier? And implicit in that idea is the notion that we are about to have or could be about to have some significant problems?

Admiral ENGEN. Senator Kasten, I never believe in luck. You make your luck. I have been flying for 45 years now and I have done some strange and unusual things. I fly in the air today on a daily basis.

I do not believe in luck. I do not believe that we are pressing our luck. I believe that we are managing the system positively.

There are things wrong in the system. When you have an operational error, that is wrong. You should not have an operational error. But an operational error does not mean that an unsafe condition existed. It just means that our safety standards were not met.

A near midair collision, if you have one of them it is just one too many. And we are honor-bound to try to reduce them. We are, I believe, taking the steps necessary in developing the TCAS, TCAS II, which is being used in one airplane now, only one airplane.

But it is coming, let me assure you, and we are going to mandate it later this year. Also coming is TCAS III, which I went up to Atlantic City and flew just 3 weeks ago. It is a magnificent new capability of providing right and left, as opposed to up and down, warning to the pilot.

We are taking so many steps out there that I cannot agree with you about luck, sir. I just cannot. We make our own luck.

Senator KASTEN. Do you think that the number of near-misses is an indication of a potential problem? Do you think that the number of runway incursions is an indication of a potential accident on the runway?

Are those not indicators, in fact the best indications that we have in terms of whether our air transportation system is becoming less safe?

Admiral ENGEN. Yes, I do. And before you go on to your next point, let me just assure you that the runway incursions this year, since January 1 this year, are down by 11 percent. We are taking those down.

We have taken the steps. We learned some very hard lessons at some very key fields, and we have taken the steps, with the NTSB's help, I might add, and our own people out there, to do the kinds of things that are taking the runway incursions down.

But we have had runway incursions ever since I have been flying. We have had near-midair collisions since the Wright brothers built their second airplane. And you know, it is something we must deal with.

But I want to assure you that we take each one very seriously. I would give you that, yes, it is an indication. It is of concern to me, of deep concern to me. But I want to assure you that we are working on it. We are not sitting idly by.

Senator KASTEN. Mr. Chairman, I know we have other witnesses here.

I just want to conclude by saying I agree with and applaud your statement that you will restrict the flow of aircraft this summer. After listening to what you have said here and also I understand some things that were said when I was not in the room, it does not seem to me that there is as much of a difference between you and Mr. Burnett as the newspaper accounts are reporting.

It sounds to me as if you have moved a little bit his way and we are going to give him a chance to maybe move a little bit your way in a moment here, and we are going to be in a position where in fact we all agree that there is a problem out there.

It seems to me that you are saying that you agree that there is a problem, that we are going to restrict aircraft flow this summer; the question is how and when, and it is a matter of degree.

And I applaud your testimony on that point, because I agree with you that we are going to have a restrict aircraft, air traffic flows, this summer, but we do not want to do it in an unnecessary or a slipshod way.

Thank you for your testimony.

Senator FORD. Thank you very much.

Admiral, I appreciate your patience.

I am very interested in the 100,000 prospects to get 1,000 controllers. It seems like a pretty good, substantial loss of prospective candidates. So I will discuss that with you a little bit later.

Any other questions?

[No response.]

Senator FORD. Thank you very much, Admiral.

Admiral ENGEN. Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF HON. DONALD D. ENGEN, ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION

Mr. Chairman and Members of the Subcommittee: I welcome the opportunity to appear before the Subcommittee today to discuss with you the status of the United States air traffic control system. This topic is of vital interest to anyone who uses our Nation's airways.

Much focus has been placed recently on the safety of our air traffic control system. Unfortunately, in my view, the tons of too many of these reports have been alarmist in nature, suggesting that the "margin of safety" is rapidly eroding and that the system is on the verge of collapse. While this is simply not the case, I do wish to emphasize that in aviation you always must work to achieve improvement in safety. In fact, it is this hard work by all of us in the aviation community that made last year one of the safest years in the history of aviation.

The air traffic system is providing the airlines and general aviation the means to fly safely under positive control in daily numbers of flights that have not been seen before. The daily aviation traffic count has risen mostly as a result of new concepts in airline scheduling to meet passenger demand in the deregulated environment established by Congress in 1978. This has been accomplished to date with improved operational efficiency and reduced accident rates. Pilots and air traffic controllers have worked closely together to keep safety paramount.

Looking back over the last year, it appears to me that much of the concern which has developed about the air traffic control system has been generated by complaints such as long waits in crowded air terminals, lost baggage, insuficient smoking or non-smoking seating, overbooking of seats, and by the number of delays air travellers have experienced. These delays have simply been too high, and have proven to be an inconvenience to all who travel by air. Commercial aviation delays are caused by weather, limited airport capacity, airline scheduling practices, airline maintenance, air traffic control procedures, and other factors. Weather alone accounts for about two-thirds of system delays; about 5-10% of total delays are attributable to the air traffic system.

We are working hard to reduce delays, as I will briefly describe in a moment. On the other hand, though, it is important to recognize that these very same delays, rather than signalling an erosion of safety, pointedly demonstrate our commitment to ensuring the safety of our air traffic operations. One outgrowth of the controllers' strike of 1981 was the FAA's determination that airborne holding would be minimized. Aircraft are still being held on the ground to avoid needless airborne holding. This is a safety and efficiency measure to ensure that delays will not be created in the air. Thus, in a very real sense, an approach we developed to provide increased safety has, unfortunately, contributed to the perception that the air traffic control system is experiencing safety problems. I don't want to imply that delays are the only problem we face in the air traffic control system. We still have plenty of work ahead of us in training controllers, upgrading the ATC equipment, and reducing operational errors and near midair collisions. As I will describe later, we are actively working in all of these areas.

Rather than describing in detail our efforts to counter air traffic delays this Summer, I am enclosing as an attachment to my prepared statement a brief paper I recently provided to Members of Congress. This paper outlines a six-point program

which is intended to keep delays significantly below the levels they might otherwise be this Summer. The program we are engaged in includes: The Expanded East Coast Plan; enchanced flow control capability; new computers at our en route centers; airline schedule adjustments; standardization of in trail aircraft separation; and an increase in our air traffic control workforce. Following my statement, I would be pleased to go into further detail concerning any of these efforts.

I would like to briefly respond to the recommendation that FAA reduce the numbers of flights this Summer. Before doing so, however, I would like to indicate that we are concerned about increased traffic levels this Summer. In fact, the scheduling meetings we held with airlines concerning five of our busiest airports have served to depeak the busier time periods in proposed schedules. We have also been actively addressing ways of improving our air traffic flow control capabilities in order to better achieve a proper balance between workload and staffing. One significant improvement being developed is called the "Aircraft Situation Display."

The Aircraft Situation Display is an automated program which enables us to monitor air traffic levels throughout the country. We are now able to see at a glance on one monitor all aircraft operating under positive control within the domestic United States. This data is updated every five minutes. This program further enables us to identify each aircraft by such features as departure and arrival airports, the operator, type of aircraft, and the specific air traffic sector in which it is operating. Thus, for example, we can ask the computer to display only aircraft whose destination is a particular airport, and all aircraft operating under air traffic control which are headed for that airport will be displayed.

Early this month, we asked all of our domestic air traffic control centers to provide information concerning those air traffic sectors which were a concern now or had the potential to be of concern this Summer. That effort resulted in about 100 en route sectors out of 652 being identified. We are now analyzing and seeking to validate the information received concerning these sectors, and, with our Aircraft Situation Display, will have the capability to monitor workload in designated sectors. This monitoring will enable tactical and strategic solutions to sector capacity problems. Our traffic management specialists will reroute aircraft around affected sectors or may delay departures destined for sectors approaching capacity levels.

We plan that this metering of aircraft through the system using our enhanced flow control capabilities will spread aircraft out in a way that peak sector traffic will be managed safely throughout the system in the busy Summer period. I would also add that we are upgrading our current capabilities to be able to predict well in advance when a given sector would be likely to reach peak levels, and to further provide us with a computer recommended approach to deal with these predicted peaks by delaying specific flights or rerouting traffic. We expect these further refinements to be available this Fall.

In short, Mr. Chairman, our flow control system provides us with the capability to monitor traffic levels and to make dynamic decisions to deal with potentially excessive traffic levels. It does not work perfectly, but recent improvements have given us added ability to deal more effectively with peak traffic periods. I can assure you that, while we have high confidence in the capabilities of our Central Flow Control Facility here in Washington and in our individual Traffic Management Units located at each of our domestic centers, we will continue to monitor traffic levels and the system's response to those levels very closely.

Before closing, Mr. Chairman, I want to make clear to the Subcommittee that we are doing all that we can to reduce the threat of a midair collision. We are actively working to identify the causes of near midair collisions and operational errors and to take action to preclude them from recurring. For example, an interagency working group has provided me with recommendations on ways to reduce near midair collisions. We recently convened a task force to look at operational errors. That group, constituted of terminal and center controllers, supervisors, Department of Defense controllers, and human factors experts, examined the types of operational errors we have been experiencing to determine both the reasons those errors have occurred and the solutions. They have looked at general system deficiencies, human factor problems, and equipment reliability in this effort. They are working on a final report now, which should be completed in early June.

I also have directed that a pilot deviation task force be assembled. This group, which will meet early next month, will include airline, FAA air traffic and flight standards experts, along with DOD experts. They will examine the full range of actions which will help address the numbers of pilot deviations occurring. Among the topics to be reviewed will be training, operational procedures, and air traffic voice procedures.

Both of these efforts will specifically focus on runway incursions, with a view toward finding effective solutions in this vexing area. I would also add that another task force has already assessed the need for changes in Terminal Control Areas (TCA's) and provided me with 39 recommendations for improvement in that area.

In addition to these assessments, we have continued to improve the equipment and training provided our controllers. We have stressed to pilots the need for visual alertness for other aircraft, to remain vigilant to the threat of other aircraft. We have taken regulatory action to increase the installation and use of transponders by aircraft. We passed an important milestone in March with the first Traffic Alert and Collision Avoidance System, TCAS II, being flown in revenue service by Piedmont Airlines. We are continuing our efforts on TCAS III, which will provide both vertical and horizontal traffic resolutions, whereas TCAS II provides only ascend or descend instructions. Our Back to Basics Program, which enhances pilot proficiency, has been attended by more than 300,000 people since last January. We are working to simlify the configuration of TCA's and to make their boundaries more readily identifiable to pilots, and we have strengthened our enforcement against TCA airspace violators. We are developing an automated intruder detection program that will alert controllers to authorized entry to certain types of airspace. We are making progress in recruiting and training air traffic controllers. And, as I noted earlier, we are making various improvements in the flow control area.

In closing, Mr. Chairman, I would like to stress that we are deeply aware within the FAA about the ever present need to improve the air traffic control system. There are aspects of the current system which we all recognize need continued emphasis: controller staffing and training; implementation of Key NAS Plan systems that will facilitate the Controller's job: refinements in our air traffic control procedures and airspace management; and reductions in air traffic delays. We are working actively in all of these areas not only to address identified needs, but to identify additional areas that need improvement. We look forward to the continued assistance of the Members of this Subcommittee in helping us to meet our safety responsibilities to the best of our abilities.

That completes my prepared statement, Mr. Chairman. I would be pleased to respond to questions you may have at this time.

U.S. DEPARTMENT OF TRANSPORTATION,
FEDERAL AVIATION ADMINISTRATION,
Washington, DC, May 1987.

FAA PROGRAM TO COUNTER SUMMER AIR TRAFFIC DELAYS

This summer will probably be the busiest air travel summer ever. The FAA has taken steps to handle this record traffic while maintaining the highest levels of safety. While traffic is increasing, so is the margin of safety. The major U.S. airlines now have gone more than 20 months without an accident involving a passenger fatality. The safety rate for the last three years is the best ever.

The FAA is faced with the dual challenge of continuing to maintain the highest levels of safety while, at the same time, handling increasing volumes of air traffic. The agency is dedicated to both safety and delay reduction. However, in any instance where there is possible compromise of one goal for the other, the FAA will always act in the interest of safety.

Commercial aviation delays are caused by weather, limited airport capacity, airline scheduling practices, air traffic control procedures, airline maintenance and other factors. Clearly, little can be done about the weather. However, action can be taken on other factors. The single most important initiative that can be taken to reduce delays is to increase airport capacity. However, this is a long-term solution. There are a number of near-term solutions which are underway.

As air traffic increases this summer, FAA initiatives will work to keep delays significantly below the levels they would otherwise be.

The following is a brief summary of that 6 point program:

1. EXPANDED EAST COAST PLAN

The first phase of this plan was implemented in February and has already resulted in a dramatic reduction in delays primarily in the New York area, and elsewhere in the Boston to Washington corridor.

2. ENHANCED FLOW CONTROL CAPABILITY

An air traffic situation display (ASD) computer system has been under design for more than a year. The FAA has been testing this device for several months and it

was put into formal operation on Sunday, May 17. This program gives the FAA flow control staff a real-time picture of all aircraft in the nation's positive control system and, more importantly, gives the FAA a capability to identify congested sections of the air space and to take corrective action; such as re-routing aircraft to less congested areas.

3. NEW AIR ROUTE TRAFFIC CONTROL CENTER [ARTCC] COMPUTER

The FAA is in the process of installing the new IBM computers which will have four times the capability and ten times the speed of current computer systems. The first of these computers is scheduled to go into full operation in Seattle on June 3. Other en route centers will also be operational this summer. All 20 en route centers will be fully operational with the computer capability before the summer of 1988.

4. AIRLINES SCHEDULE ADJUSTMENT

Earlier this year, the FAA conducted a series of meetings with major air carriers which resulted in an adjustment of more than 1,000 airline schedules involving such major airports as Chicago O'Hare, Atlanta Hartsfield, Dallas-Ft. Worth, and others. Virtually all of these schedule changes will go into effect on June 1.

5. STANDARDIZATION OF IN TRAIL AIRCRAFT SEPARATION

The FAA has taken action to standardize longitudinal spacing between aircraft at high altitudes at no less than ten miles. This standardization maintains the highest level of safety while at the same time allowing a more efficient use of the nation's airspace. This ten mile standard is a guideline and individual air traffic control managers retain the ability to increase spacing if, in their judgment, circumstances such as weather, traffic congestion, or other factors would warrant.

6. INCREASE IN AIR TRAFFIC CONTROL WORK FORCE

During calendar 1986, the FAA increased the total controller work force by more than 800 and increased the number of full performance level (FPL) controllers by more than 1,000. The FAA is continuing efforts to increase both the size and experience level of that work force.

OTHER INITIATIVES

At the same time, the FAA has a number of other initiatives underway which will not directly impact on the 1987 Summer season, but will have a very positive, longer-term impact on the overall safety and efficiency of the system. These initiatives include the development of a West Coast Plan and a similar plan for the Midwestern region, similar to the East Coast Plan described above, continuing implementation of the National Airspace System Plan (the FAA is acquiring and installing 80 to 100 pieces of modern air traffic equipment each month), further enhancement of flow control computer capability, installation of on-board threat collision and avoidance equipment, and redesign of terminal control areas.

QUESTION OF SENATOR DANFORTH AND THE ANSWER

Question. The Federal Aviation Administration has determined that all aircraft operating within Terminal Control Areas after December 1, 1987, shall be equipped with altitude-encoding transponders. This requirement does not now extend to aircraft operating within Airport Radar Service Areas (ARSA's). If the requirement for use of altitude-encoding transponders where extended to ARSA's, would this have a beneficial effect on aviation safety?

Answer. Altitude encoding transponders readily provide information needed by air traffic personnel in making separation decisions. In the heavy traffic environment of our terminal control areas (TCA), this information availability enables controllers to safely handle a large volume of aircraft without the need for excessive communications.

The Federal Aviation Administration (FAA) concurs in concept with expanded use of altitude encoding tranponders in the National Airspace System. The FAA is proposing a new altitude encoding transponder requirement within 30 nautical miles of the primary TCA airport. In addition, we are reviewing the benefits of extending the requirements for altitude encoding altimeters to other airspace including airport radar service areas. We expect the review to be complete by next October.

Senator FORD. The next witness will be the Chairman of the National Transportation Safety Board, Chairman James Burnett.

Mr. Chairman, come around.

Mr. Burnett, you have been here before and you understand our procedure. You can submit your statement for the record and highlight it and then we will have at you.

STATEMENT OF HON. JAMES E. BURNETT, CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD, ACCOMPANIED BY DAVID KELLEY, CHIEF OF OPERATIONAL FACTORS DIVISION, BUREAU OF TECHNOLOGY

Mr. BURNETT. Thank you, Mr. Chairman.

Mr. Chairman, I appreciate the opportunity to be here with you today to discuss an aviation issue of paramount importance and concern, the safety of our air traffic control system.

Mr. Chairman, I would like to introduce—with me today is Mr. David Kelley, who is Chief of our Operational Factors Division of our Bureau of Technology, an expert on air traffic control matters.

I believe, and my colleagues on the Safety Board express the same concern, that the traditional increase in traffic in the summer months could strain the system's capacity. The Safety Board does not give such a warning lightly, nor were its recent recommendations to the Federal Aviation Administration developed in a vacuum.

We have been seeing and voicing concern that the indicators of aviation safety suggest the need for constant vigilance and a willingness to cut back traffic if necessary. We believe in some instances that it is.

The Safety Board has testified three times this year regarding various problems within the air traffic control system. In January I testified before this committee that:

> The Safety Board's recent investigations of several runway incursion incidents have reinforced broader concerns about the overall health of the air traffic control system, specifically the ability of the present ATC staff to cope with the increasing volume and complexity of traffic at the nation's major terminals.

In February, NTSB member Joseph Nall testified in Chicago before the House Government Operations Committee that:

> All too often in the past, we have seen similar situations like O'Hare—an increase in incidents or operational errors that should have served as a warning to an accident. The Safety Board believes that it should not take a tragedy to get these problems the attention they deserve.

Most recently, I testified in April before the House Public Works Committee that:

> We have determined that many of the safety deficiencies that we identified at O'Hare were also prevalent at Los Angeles. These deficiencies involve coordination between controllers, controller staff levels, the training and quality assurance programs, supervision, facility evaluations, and the methods by which controllers who had been involved in operational errors were recertified.

And the correction of many of these problems, Mr. Chairman, is complicated by the heavy traffic levels that the system is required to handle.

In investigation after investigation, facility after facility, we keep finding the same problems causing the same types of errors, and this concerns us. It concerns us that we have seen an increase in

the number of air carrier near-midair collisions from 240 nationwide in 1985 to 340 in 1986, an increase of about 42 percent.

And so far this year at the current rate, it is running 39.5 percent higher than last year. That, when projected out over the full year, would yield 474 air carrier involved near-midair collisions for this year. That would be almost double the 240 that we had in 1985.

It concerns us even more that, of those 340 near-midair collisions in 1986, 57 were classified by the FAA as critical, denoting a situation where collision avoidance was due, according to the FAA, to chance. In other words, 57 air carrier aircraft missed being involved in a midair collision merely by chance.

The number of controller operational errors has increased 20.9 percent during the first quarter of 1987. This recent increase contrasts sharply with the general reduction in operational errors during 1985 and 1986.

We understand that early second quarter figures indicate a reduction to a 10-percent increase over 1986, but that is still a significant increase over the previous year.

The number of runway incursion incidents caused by controller performance deficiencies has increased nearly 50 percent, from 77 in 1984 to 115 in 1986.

The letter, Mr. Chairman, that we received yesterday from the FAA and other information that they provided us yesterday indicates that in the first 6 months of this fiscal year there has been about a 10-percent reduction in runway incursions. We do not have April or May data yet.

Thus, three major indicators of aviation safety—near-midair collisions, controller operational errors, and runway incursions—all have registered significant increases. Add to that the continuously increasing traffic being permitted into the air traffic control system, and I think the Safety Board's concern for the immediate future is more than substantiated.

Thus the Board, as you know, recently made an urgent recommendation to the FAA that it in essence restrict traffic in those areas and at those peak times when air traffic control sectors are saturated.

We did not identify those sectors, as we do not have the capability to do that. We have asked the FAA to do that and I am told that they have done so. In fact, the Administrator mentioned in his reply letter to us that they had through their own people identified 100 sectors that might reach critical conditions this summer.

In the interest of time, Mr. Chairman, I would like to submit the rest of my statement for the record. I will be pleased to respond to your questions.

Senator FORD. Thank you, Mr. Chairman.

In your first sentence or two of your short statement you said that the increased traffic this summer could strain the capacity of the system. Did I hear correctly that you do not know whether it will be strained or not? You said it could strain the capacity?

Mr. BURNETT. Well, frankly, Mr. Chairman, I think the Safety Board is being very conservative in its approach. This is based on the reluctance of the staff to say more than we have direct evidence for arising from our investigations.

We did say in our letter that we thought that there had been an erosion of safety already. I personally, although this is not a word that the Safety Board has used, believe that we have already reached in many sectors a critical situation.

Senator FORD. You of course know that no accurate record, I think, has been available by FAA for near-misses until after 1982 or 1983? I believe that is correct, is it not?

Mr. BURNETT. Well, I think they made major improvements in their reporting system in 1984. Certainly there were major increases in the numbers that they were reporting coming from 1984 to 1985, but part of that is probably due to their—is certainly due to their improvements in their reporting system.

Senator FORD. It is my understanding that FAA—and it may be yours, too, if I am correct—do not challenge the reported near-miss by a pilot. They accept that as a reported near-miss. I suppose the near-miss is in the eye of the beholder.

Then they try to analyze those near-misses as within the three or four categories that they have established; whether they are hazardous, non-hazardous or critical, whatever.

Mr. BURNETT. To give you an example, Mr. Chairman, the 340 air carrier near-midair collisions that were reported in 1986 were broken down by the FAA into critical, potential, and no hazard. The no hazards are still counted, but that basically constitutes the determination by the FAA that there was not a near-collision.

I think in 1986 they classified, out of those 340, about 93 of them as no hazard; and they classified 57, as I mentioned, as critical, avoiding the collision merely by chance. That is better than one a week.

Senator FORD. In your opinion—or before I get to that, how many of those near-misses were private aircraft versus commercial aircraft?

Mr. BURNETT. Well, those figures that I have mentioned all involved an air carrier.

Senator FORD. Air carrier.

Mr. BURNETT. A much larger figure, when you get to 800 and some odd total near-midair collisions that includes many that are not air carrier. In fact, a substantial number of them will be near-midair collisions between aircraft that are VFR and are not in any way related to the safety of the air traffic control system.

Senator FORD. So apparently approximately half, if you get into the 800 of last year, approximately half of those were VFR aircraft that were not tied in?

Mr. BURNETT. No, I think there were around 270.

Senator FORD. Okay.

Mr. BURNETT. And we might have to correct that for the record.

Senator FORD. Well, you are getting almost as old as I am, and you will start forgetting more and more.

Mr. BURNETT. Breaking down 1986 for field, there were 839, and the breakdown VFR, VFR—that is, neither one of them under control—290; one under control would be 500; and both under control, 50.

Senator FORD. Okay, both under control.

Mr. Burnett, the Board's recommendation to restrict the flights arises from the question of the need to regulate commerce. How do

we balance the paramount importance of safety while at the same time fulfilling the demands of ensuring interstate commerce?

Mr. BURNETT. Mr. Chairman, I found a very interesting press article recently, and this did not result from our investigations, that indicated that at Leesburg, at the en route control center there, that they are up now to over 8,000—they had a record day last week, over 8,000 aircraft being handled during the day, 26 percent above the daily average for the month of April. That was the second day in a row they set a record.

The manager of that facility said 60 percent of their traffic occurred in a 5 hour period in the afternoon, 5½ hour period.

I believe that we can handle many of the restrictions the Safety Board would like to see without people being prohibited from reaching the points they want to reach within the day they want to travel. But we have to use the system more efficiently at the times it is underutilized.

Senator FORD. How do we make an individual travel when he does not want to travel or she does not want to travel?

Mr. BURNETT. Well, that of course is part of the problem, and the Safety Board is aware that——

Senator FORD. We could have a staggered takeoff and a staggered arrival or something?

Mr. BURNETT. We do have limited capacity and we have to recognize that, and we have to schedule air travel when the capacity is available to do it.

Senator FORD. Well, the only problem I can tell you, business people will leave early in the morning on an early flight, go to their destination, do their day's work, come back home on a late flight, and they are able to accommodate their enterprise, their industry, and do a full day's work and still spend the night at home.

That is the convenience and that is the commerce part of air traffic. I am trying to figure out a way of how can you make that individual fly at 11 a.m. and come back at say 4 p.m., which would be the two slack periods—I am just taking that as an example—when he really wants to fly out at 7 and come back at 11?

Mr. BURNETT. Mr. Chairman, the Safety Board has readily admitted that the implementation of our recommendations to the extent that I would like to see them implemented will involve a tradeoff with those pressures to reduce delays, and in fact may increase travelers' frustration, mine included, during this coming summer.

There is a tradeoff between providing a kind of service that all of us as travelers would like to have and maintaining, I think, a high degree of safety in the system.

Senator FORD. Now, when Admiral Engen said that he is now in the process of looking at overloads, requesting—holding planes 15 seconds in takeoffs and an additional 15 seconds in landing or something that gives adds 30 seconds to their plane on the ground and, that he is already applying what you have recommended, do you agree with what he said?

Or does that factor out with your thinking?

Mr. BURNETT. Of course, Mr. Chairman, the processes that we are calling for have been in existence for some years—flow control procedures. The reason that the Board made the recommendations that we made was because of a rising concern about how well the

FAA was implementing that and whether or not they were responding to the pressures to reduce delays by in effect reducing safety.

The Administrator responded to the Safety Board's recommendation in a letter that was delivered to us yesterday. The Board has not had an opportunity to formally evaluate that.

My personal opinion, having read the letter, is that there is nothing in that letter that reassures me that the FAA is going to do what we think needs to be done. There were comments made here by the Administrator today that I found encouraging.

But I want to warn against the idea that the FAA can come up with some sort of painless dentistry that is going to mean that we can achieve an adequate margin of safety without having any kind of unfortunate consequences on the expedition of traffic.

Senator FORD. If you were commanded today, and had all the resources available, to make you feel 101 percent comfortable in flying because it was safe, give me in order, one, two, three, four, five, or however many, what would be your first, second, and third choices that you would implement and you would do?

Mr. BURNETT. Well, the first thing I would do is to establish for each sector and each terminal of those that are under flow control at this time a realistic estimate as to what kind of traffic levels can be handled on an hourly and perhaps even a basis of less time period than that, given a realistic assessment of the ability of the work force in that particular facility to handle that traffic load.

And that would take an individual assessment of the level of experience, as well as the staffing numbers that are available.

I would limit traffic and take steps to try to anticipate what traffic levels would be as best they can—and the FAA will be in a better position to do that next September than they are now—and endeavor to limit air carrier traffic to levels that can be more readily handled.

The bottom line, I think, Mr. Chairman, is that the FAA I believe is trying to run the system up to the red line, and I am not in favor of that. I think that we do not need to play a game of chicken to see how close we can get. We need to run the system on cool instead of on hot.

We need to build in a margin of safety, some slack, if you will, that will give us the kind of safe operational situation that I think is required.

Another thing that I would do is to avoid what I think is implied in the Administrator's letter, is a programmed return to the use of stacking patterns. The Administrator in his letter says:

> Our aim is to manage demand in the system so that airborne holding is kept to an absolute minimum consistent with providing a steady arrival rate, to ensure no gaps and to capitalize on slight capacity increases due to aircraft mix.

And he goes on to say that this is no change in the FAA's policy. What the Safety Board would like to see is a system that ensures that we only have holding in the event of emergencies, an unexpected situation such as a weather development that takes place after the aircraft has been dispatched.

I hope I am reading this wrong, but the way I am reading it is that the FAA plans to use holding intentionally so that they can

provide a steady arrival rate to ensure no gaps and to capitalize on slight capacity increases, which of course is what the Air Transport Association has been urging them to do.

Senator FORD. Maybe you missed my point. You talk about an assessment and maybe you would do it looking at the short term. But what about controller staffing? What about collision avoidance equipment? The computers are wearing out. We do not have enough controllers; they are working overtime.

I thought you would have hit on something like that as those things that you would put in place immediately to improve air safety in order to give the controllers an opportunity just to work regular hours and to avoid the burnout from overtime as well as some of these other things that most of those in the airline industry have been preaching to us.

Now, you can have all these studies you want to and make all the judgments you want to. If you do not have the equipment or the controllers to do it with, it does not make any difference what you do, does it?

Mr. BURNETT. The problem is none of those things can be done immediately. They are long term responses and they will not help in our situation, the critical situation that I see us having this summer.

In fact, the Safety Board is working on a set of recommendations as to how the FAA can improve its long range situation, with changes in the national air space system.

And as this committee has correctly pointed out, the implementation of adequate funding for that national air space system is a critical issue, a critical long range issue that must be examined. But that is not going to help us deal with the critical situation this summer.

In addition, some increase in controller staffing might be helpful. It will not increase the capacity of the system at peak times, because they already man the system for peak times up to the levels that they can now use.

It would perhaps increase—even at peak times, to have some more controllers would increase the level of safety, by allowing them to rotate controllers and not having them to spend so much time on the scope without a break, as in some cases they are having to do at this period of time.

But again, new controllers cannot be brought through the pipeline in the framework that the Safety Board is trying to address in its recent letter.

Senator FORD. Well, you are saying that you would like to have a study and determine the extent of the capacity. But in your recommendations, you recommend that only the most congested airports limit their flights. However, in your statement you also said that it is just as common for near-misses and controller errors to occur in lightly traveled areas as in the most congested.

Mr. BURNETT. I think what we said is that we find near-misses and operational errors occurring at off-peak times at many of the areas that we have looked at. And one of our concerns is the cyclical nature of the controller's workload.

In other words, they have these intense peak periods where they are required to work at a very intense high, and there tend to be

operational errors taking place after they come off of that peak period, when they are in the low part of the cycle.

I think that the peaks that they are required to sustain contribute to that. Certainly the level of traffic, the peak levels of traffic—they are making decisions such as using supervisors to control traffic at some of those peak times so they will have enough people, rather than providing supervision at all the non-peak times, so that there is not as much redundancy there to provide them the same level of safety as we have at the other times.

So again, those things are driven by the levels of traffic that are being introduced into the system.

Senator FORD. If Admiral Engen is correct in FAA's ability—and I do not refute his statement; he says it and he says it as honestly as I think a man could say it—that he can reduce air traffic with his air flow or flow control system, and he is able to do that, does that satisfy your problem as it relates to reduction of flights?

Mr. BURNETT. Our recommendations were made on the assumption that the FAA would in fact be able to implement them, and I am convinced that they will. I also believe that Admiral Engen, if he sees the situation becoming critical, will move to do so.

He is probably not going to be there for the term of the summer, and I do not know about his successor. And I do not know about what kind of——

Senator FORD. Do you not think this committee will find out from his successor what he is going to do before he is approved?

Mr. BURNETT [continuing]. I certainly expect so.

Senator FORD. It may take a day or two to get it all in and out, but we are going to promise you that he will understand what our desires are.

Mr. BURNETT. But I think it is important to understand that I do not believe that Admiral Engen as yet understands the situation to be critical. I think there is a difference between the Safety Board's assessment of the import of some of the safety indicators that we are getting and that that is entertained by the FAA.

Senator FORD. Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman.

Thank you for your important testimony today, Mr. Burnett.

In your testimony, you say that:

> Thus, the Board, as you know, recently made an urgent recommendation to the FAA that it in essence restrict traffic in those areas and at those peak times when air traffic control sectors are saturated.

Then you say:

> We did not identify those sectors, as we do not have the capability to do that.

That is in your statement. And then orally, in response to one of the chairman's questions, you said: We have reached in many sectors a critical situation.

Can you identify those sectors?

Mr. BURNETT. In our discussions with people in the air traffic control facilities across the country, both controllers and their supervisors, we have found many of them who have been concerned about the levels of traffic that they expect that they will have to handle during the summer periods.

The Administrator in his letter to us yesterday reported that there were 100 sectors that they had identified through their interviews with their personnel that he said could reach a level of concern.

I think we have seen in the course of our investigations—and I will ask Mr. Kelley if he wants to cite some examples. You have to realize we only have four air traffic control investigators, so we can only investigate a miniscule number of these reports that are provided. Most of our people are now tied up in investigating the rash of air traffic control-related accidents we have had since the first of the year.

So we are not in a position to begin to identify and name sectors. I think part of our reluctance in going farther than talking about an erosion of safety and cause for concern, was the fact that we are not in a position to document systematically this situation across the country.

Senator MCCAIN. Mr. Burnett, with all due respect, sir, you made a very dramatic and compelling statement here. You said: "We have reached in many sectors a critical situation." I interpret that to mean as a strong likelihood that there can be a major accident.

Yet when I ask you about that, you cannot identify which sectors you are describing.

Mr. BURNETT. No, and we are not going to make any attempt to do that.

Senator MCCAIN. Well, then I think you are a bit reckless in——

Mr. BURNETT. To pick out one, rather than looking at all of the 100 that the FAA says may be cause for concern, I think would not be an appropriate way for us to respond. I think, however, that it is important to realize that the evidence that we get from the safety indicators, the massive increases in near-midair collisions involving air carriers, the increases in operational errors, the reverses in the trends that formally existed, the progressive decrease in operational errors, the increases that we have seen in problems in towers and terminals, like O'Hare and Los Angeles—personally, my evaluation of our situation, our investigations at both Los Angeles and O'Hare was that those had already reached critical.

Senator MCCAIN. So you are willing to identify those sectors?

Mr. BURNETT. The Board has done that in its letter that we directed to the FAA making recommendations on problems that existed at O'Hare.

Senator MCCAIN. Can you identify for this committee and for the American people those sectors that you believe have reached a critical situation?

Mr. BURNETT. Well, Mr. Kelley might address some of the other investigations that we have ongoing and some of the problems we found.

Senator MCCAIN. Well, let me repeat the question. Would you identify for this committee and for the American people those sectors which you believe have reached, in your statement, reached a critical situation?

Mr. BURNETT. We do not have a comprehensive list of sectors. We can only discuss what we have found in the course of the accident investigations that we have ongoing or the incident investigations that we have ongoing.

Senator McCAIN. Then let me ask the question in a different fashion. Would you identify for this committee and the American people those areas that you have identified as having reached a critical situation?

Mr. BURNETT. We wrote a letter to the FAA in relation to O'Hare.

Senator McCAIN. I am not asking about a letter that you wrote to the FAA, Mr. Burnett. I am asking if you will provide this committee and the American people with a list of those sectors that you believe, based on your investigation, have reached a critical situation?

Mr. BURNETT. We have made no attempt to make such a list, nor do I believe that we are——

Senator McCAIN. Excuse me for interrupting, Mr. Burnett. You are not answering my question. I keep asking you.

Now, for about the fifth time, will you make available to this committee and to the American people those sectors that you have stated have reached, given the limitations of your investigation, have reached a critical situation?

Mr. BURNETT. Let me repeat, Senator, that I have made no determination, either personally nor has the Board, of sectors that have reached a critical situation. The reason that I believe that we have critical sectors is because of the mass of evidence we have arising out of the near-midair collision reports and the operational error reports.

The Safety Board does not have the wherewithal to make those determinations. We think the FAA does and should do so.

Senator McCAIN. Well, did you not just identify two to me, Los Angeles and Chicago O'Hare?

Mr. BURNETT. Those have both been listed in Safety Board documents, in which we have made, in the case of O'Hare, some particular safety recommendations. At Los Angeles we have stated in previous testimony before other committees of Congress that we found the same things, the same problems we did at O'Hare.

Senator McCAIN. I will ask you the question again. Will you provide for this committee the list of those sectors that so far you have determined have reached a critical situation?

Mr. BURNETT. We certainly will provide a list of problems that we have found in particular air traffic control sectors.[1]

Senator McCAIN. Well, Mr. Burnett, I must express some disappointment in your failure to respond. You have told the chairman of this subcommittee that you believe that there are many—you said you would even go further than your prepared statement, that there are sectors that we have reached—and I wrote down your statement—"we have reached in many sectors a critical situation."

If you believe that, then I think that this committee is owed, and the American people, an identification of those sectors.

Mr. BURNETT. I repeat——

Senator McCAIN. And I would—please do not interrupt me until I am finished my statement or comment, and that is that I think we are owed that information, to the American people, because

[1] At press time, September 16, 1987 no material had been received.

they may not want to fly into those sectors, or perhaps it may have an impact on their decisions as to where they wish to fly.

I would hope that perhaps after the hearing we can rectify this failure of communication, because I would like to have the best of your information as to those various sectors that you believe have reached a critical situation, which you stated to this committee.

Thank you. Go right ahead.

Thank you, Mr. Chairman.

Senator EXON [presiding]. Thank you, Senator.

Welcome, Mr. Burnett, Mr. Kelley. I appreciate very much your coming back once again, and I appreciate very much the leadership that the National Transportation Safety Board under your direction, Mr. Burnett, has taken.

You have taken some strong stands, and we need the help and input from people like you who are experts in this area.

Mr. Kelley, I welcome you here also, and possibly some of the questions that I am going to ask may be referred to you.

In the line of questioning from Senator McCain, we kept talking about—I heard "sectors." Now, being a layman, I assume that sectors we are talking about are not airports per se, but space that aircraft have to go through, whether they are flying from Miami, Washington, DC, Philadelphia, New York, or Boston.

I mean, sectors means the air space up there, is that not right, as opposed to Washington National Airport and O'Hare and so forth, is that not right?

Mr. BURNETT. That is correct.

Senator EXON. Let me ask the question in this fashion. Which airports do you view as the most congested from a safety standpoint? You have mentioned specifically Los Angeles and O'Hare, and I would think that would be they are congested airports where we have a more hazardous situation with regard to midair collisions in and around the immediate control of those airports.

I would assume, and do I assume correctly, that Atlanta, because of its volume of traffic, would also fit into that category?

Mr. BURNETT. Well, of course Atlanta does have a very high volume of traffic. I think we do have to realize that when we talk about the safety that is being provided at a particular airport, we are talking about the relation of the amount of traffic they have in relation to the ability of their controller work force to handle that.

And that differs from airport to airport in terms of number and also in terms of experience levels. For instance, working at O'Hare means that you are going to become experienced in a hurry because of the intense situation that exists there.

I have talked with many pilots who would rather fly into O'Hare than anywhere because of the high level of professionalism that exists there, although we certainly documented in our last visit to O'Hare that there were some controllers who were having to work 4 or 5 hours at a scope continually, which is clearly an unacceptable situation.

So just because there is a high level of traffic there does not mean that there is a level of risk that has been provided.

But our concern is not limited to a few airports, it is a concern about the entire system. The FAA I believe has 35 airports that are subject to some monitoring under the central flow control plan.

And I certainly would not want to pick out any airports as being more problems than others within that, except to the extent that the Safety Board has conducted investigations at a few and has identified specific problems that we are able to report.

Senator EXON. Mr. Burnett, let us talk a little bit about these peak time situations. It is true, is it not, that during these peak times—and I would think, for example, that 5 o'clock to 7 o'clock on Friday evening, since that is when I travel a great deal out of Washington National, if there is more of a peak time than that particular time frame at National, God help us, because that is something that I am familiar with. Whether or not that is the peak of peaks, I do not know, but I suspect it might be.

I think what you are saying and what you are trying to get across is that, if we would control the number of flights out of, in and out of airports during these peak times then some of our problems maybe reduced. And peak time basically is the time that Jim Exon and all like me want to get on an airplane to go someplace, and obviously Friday night is when Congressmen and U.S. Senators are generally leaving here.

It would not make a whole lot of difference to me whether it was 4, 5, 6, 7, or 8 o'clock at night, it does not seem, if we could stretch these things out. But if they ask me if I would rather had my druthers, I would rather leave at 5 o'clock. That is the most convenient time for me.

Are you not trying to get across the point that without significantly reducing the number of flights in and out of Washington National, for example, that air traveler Exon might have to be told: I am sorry, we are not going to have a 5 o'clock flight; you are going to have to leave at 4 or you are going to have to leave at 8 o'clock at night.

Are you not talking about stretching out and eliminating some of these peak of peak hours? Is that the basic thrust of your recommendation?

Mr. BURNETT. Well, that I hope is all that would be involved, and that we would not have—that people would still be able to reach their destination within a few hours of when they had hoped to, even with the kind of restrictions on traffic the Safety Board would propose.

But we want to emphasize that what we are calling for we are not representing to be a painless process. It will definitely increase the frustrations of all travelers, including me. And I do travel on air carriers.

Senator EXON. Are the statistics that you gave us on the significant increase of near-misses broken down as to what times of the day or which days of the week most of those near-misses occur?

Is there a pattern to those at all? The reason for the question is I would assume, if it is true that some of our problems are overloading of sectors, overloading of airports, and the takeoffs and landings during these peak hours, I would assume that that would be the time that we would have the most near-misses.

Do I assume correctly, or is that not necessarily a fact?

Mr. BURNETT. I do not think that is necessarily a fact. In fact, with the kind of cyclical patterns—and the cycles come—even

within the hour there are peaks and valleys in the level of the workload that the controllers have to deal with.

And when you have this working to an intense pitch at one point and then being able a few minutes later or a few hours later to relax somewhat, in fact the penalty that you pay, the intense work that is demanded of you at the peak period may bear its fruit at a time when you are in the valleys.

Senator EXON. Bear ill fruit, right?

Mr. BURNETT. Ill fruit in this case, bitter fruit.

Senator EXON. So what you are saying is that it does not necessarily follow, then, that the most dangerous time to go in and out of O'Hare Airfield is when they are landing and taking off the most aircraft? It might be when they relax a little bit that something happens?

Mr. BURNETT. I would definitely not advise travelers to try to pick an off-peak time to fly. But I think they need to be able to accept the fact that delays, at least in the short run until some rescheduling can be done, may be a necessity of the operations, and not try to build the pressure upon the airlines and the FAA to reduce those by forfeiting the public safety.

Senator EXON. I have one more question, Mr. Chairman.

I think that you have sensed today, and in your previous appearances before this subcommittee, that we here think we have some heavy responsibilities in this area. We are trying our very best to discharge those responsibilities in a reasonable, rational fashion, not based on emotion.

What should we be doing, Mr. Burnett? Let me phrase the question this way. If you were a Member of the House of Representatives or if you were a Member of the U.S. Senate, given the knowledge that you have, what would you be doing that we are not doing on this very serious problem that many of us have sensed for a long time. We feel that much of it could, unfortunately, come to a head with the increased traffic that we are going to see this summer.

What would you be doing as a Member of the U.S. Senate or the House of Representatives? Would you introduce a bill that mandates no more than so many planes landing in a certain area?

Would you mandate this by law? Or would you think that would not be fruitful and that our best course is merely to hold hearings, as we are holding today, to keep the pressure on those who have the responsibilities under existing law to straighten this thing out?

I think you get the thrust of my question. If you were sitting up here, what would you do that this Senator has not done?

Mr. BURNETT. Yes, Senator, and it is a very important question. I would not introduce a bill. I do not think there is a legislative solution for this problem, and the attempt to try to mandate traffic levels—and I know there has been some discussion of that—in particular sectors at particular times I think would introduce rigidities in the system which would complicate the FAA's ability to deal with the problem.

I think the solution has to lie with the FAA. And I think it is important for the FAA—and I want to emphasize that the Safety Board is not attacking the FAA. They have done a very difficult job

during the last few years trying to handle the increase, the vast increase, in traffic, and at the same time rebuild from the strike.

But I think that in the short run it is important that they know that they have the political mandate to do what is necessary, that the Congress will support them in making the tough decisions, even if they may be unpopular with the traveling public, and even if they do frustrate Jim Burnett or Senator Exon on our travel plans.

I think it is important that they know that they have got that kind of a mandate from the executive branch also, from their superiors in the executive branch of government. And that I think is the most that we can do in the sort of political side of the equation to help resolve the problem in the short run.

Of course, there are many long range solutions the Safety Board is going to attempt to address, and that I know that has been of great concern to this committee and the committee has already contributed to in a constructive manner and will need to continue to follow in a very close way as far as the adequate funding of the national air space system.

Senator EXON. Thank you, Mr. Burnett. Thank you, Mr. Kelley. Thank you, Mr. Chairman.

Senator FORD [presiding]. Thank you, Mr. Chairman. We appreciate your continued courtesy and cooperation and effort to make the airways safe.

[The statement follows:]

STATEMENT OF HON. JIM BURNETT, CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD

Mr. Chairman, I appreciate the opportunity to be here with you today to discuss an aviation issue of paramount importance and concern—the safety of our Air Traffic Control (ATC) system. I believe, and my colleagues on the Safety Board express the same concern, that the traditional increase in traffic in the summer months could strain the system's capacity.

The Safety Board does not give such a warning lightly; nor were its recent recommendations to the Federal Aviation Administration (FAA) developed in a vacuum. We have been seeing—and voicing concern—that the indicators of aviation safety suggest the need for constant vigilance and a willingness to cut back traffic if necessary. We believe, in some instances, that it is.

The Safety Board has testified three times this year regarding various problems within the ATC system. In January I testified before this Committee that: "The Safety Board's recent investigations of several runaway incursion incidents have reinforced broader concerns about the overall health of the air traffic control system, specifically the ability of the present ATC staff to cope with the increasing volume and complexity of traffic at the nation's major terminals."

In February NTSB Member Joseph Nall testified in Chicago before the House Government Operations Committee that:" . . . all too often in the past we have seen similar situations like O'Hare—an increase in incidents or operational errors—that should have served as a warning or precursor to an accident . . . . The Safety Board believes that it should not take a tragedy to get these problems the attention they deserve."

And, most recently, I testified in April before the House Public Works Committee that: ". . . we have determined that many of the safety deficiencies that we identified at O'Hare were also prevalent at Los Angeles. These deficiencies involved coordination between controllers, controller staff levels, the training and quality assurance programs, supervision, facility evaluations and the methods by which controllers who had been involved in operation errors were recertified."

In investigation after investigation, facility after facility, we keep finding the same problems causing the same types of errors, and this concerns us. It concerns us that we have seen an increase in the number of air carrier near midair collisions

from 240 nationwide in 1985 to 340 in 1986, an increase of about 42 percent. And this year, at the current rate, it is estimated to be 32 percent higher, or 449 cases.

It concerns us even more that of those 340 near midair collisions in 1986, 57 were classified by the FAA as critical—denoting a situation where collision avoidance was due to chance. In other words, 57 air carrier aircraft missed being involved in a midair collision merely "by chance."

The number of controller operational errors has increased 20.9 percent during the first quarter of 1987. This recent increase contrasts sharply with a general reduction in operational errors during 1985 and 1986. We understand that early second quarter figures indicate a "reduction" to a ten percent increase over 1986—but that is, still, a significant increase over the previous two years.

The number of runway incursion incidents caused by controller performance deficiencies has increased nearly 50 percent, from 77 in 1984 to 115 in 1986.

Thus, three major indicators of aviation safety—near midair collisions, controller operational errors and runway incursions—all have registered significant increases. Add to that the continuously increasing traffic being permitted into the ATC system, and I think the Safety Board's concern for the immediate future is more than substantiated.

Thus the Board, as you know, recently made an urgent recommendation to the FAA that it, in essence, restrict triffic in those areas and at those peak times when air traffic control sectors are saturated. We did not identify those sectors, as we do not have the capability to do that. We have asked the FAA to do that, and I am told they have done so.

With your permission, Mr. Chairman, I would like to submit for the record a copy of the full text of the Safety Board May 13 recommendation letter. The following summarize its contents.

Safety Board investigations of several recent incidents reveal that the nation's ATC system is at time overburdened with traffic; lacks continuously effective terminal and en route traffic flow control programs; and, at some control facilities, lacks the number of qualified controllers necessary to fully staff control positions throughout the day.

The Safety Board's recent and past investigations of operational errors and runway incursion incidents have disclosed that the factors and circumstances of the errors vary and that the errors connot be attributed to one single cause. Most of the occurrences, particularly those which have involved tower personnel, were the result of a breakdown in controller procedures, poor coordination, and a general lack of supervision. In many of the case described in a special investigation of runway incursions, Safety Board investigators found that supervisors either were working a control position or performing other duties which precluded their availability to provide oversight and resolution of developing conflicts.

The Safety Board's findings generally support the FAA's analysis which shows that operational errors are committed by both experienced and inexperienced controllers and are just as apt to occur during periods when traffic is moderate or light as when traffic is heavy. Nonetheless, the Safety Board believes that a continual increase in daily workload can be a factor which increases a controller's vulnerability for error, that longer periods between breaks and the cyclic nature of the workload can lead to an insidious loss of attentiveness during a period of reduced traffic with serous consequences.

When Safety Board investigators interviewed randomly selected controllers in TRACON, tower and ARTCC facilities, nearly all of those interviewed in the ARTCC facilities expressed concern about the increasing levels of traffic they were required to control during some periods of their work shifts. They stated that certain sectors become extremely busy and present complex traffic situations during some periods as air carrier airplanes operate to and from their major hubs for flight connections.

The controllers' observations of a continually growing workload are substantiated by a recent FAA report which shows that at 22 airports, the avarage daily operations for February 1987 have increased 10.2 percent when compared to July 1981, just before the Prefessional Air Traffic Controllers Organization (PATCO) walkout. Individually, these data show that Atlanta has increased 25 percent, Los Angeles has increased 17 percent, Detroit has increased 46 percent, and Newark has increased 55 percent. This same report shows that the average daily operations at the 20 ARTCCs have increased 10.4 percent when compared to 1981. Individually, these data show the average at Atlanta ARTCC has increased 28 percent, Los Angeles has increased 35 percent, and Boston, Jacksonville and Washington ARTCCs have all increased 21 percent.

While the controllers did not believe that the current situation should be categorized as "unsafe," many believed that an unsafe situation could develop if the traffic volume continues to increase. In fact, many controllers in the facilities expressed concern that the controller staff on board will not be sufficient in terms of numbers, qualifications and experience to cope with the needs of their facility during the coming summer.

In addition, the controllers believe that overtime needs and scheduled leave will exacerbate the problem, particularly where the flexibility to use some controllers in busy positions is limited by individual qualifications. They were concerned that many of the controllers who will be staffing busy positions this summer have not had experience handling the complex air traffic control situations that develop when the circumvention of thunderstorms is required, and to do so under increased levels of traffic could lead to an unsafe condition.

The strength and experience level of the controller workforce is only one of several factors which affect the ability to the ATC system to accommodate increasing levels of traffic safely. Even with a full staff of trained and experienced controllers, there is a limit to ATC system capacity imposed by the required spacing of airplanes that can be landed and departed from the airport runways available and the rate at which airplanes can be intermixed as they move with an orderly flow and prescribed separations through a given volume of en route airspace. Other factors affecting these rates include the complexity introduced by individual sector geographical size characteristics, converging airways, the presence of hazardous weather, radio frequency congestion, and the wide variation of performance characteristics of different airplanes.

The Safety Board believes that the peak traffic flow in some parts of the ATC system today is approaching the limits imposed by these considerations. In fact, the present staffing shortages of certain facilities notwithstanding, ATC facilities now are generally able to staff all control positions with qualified persons during the periods when peak traffic flow is anticipated. Thus, while the overall level of experience may be a factor, the staffing shortages per se are probably not a significant limitation to the maximum level of traffic that can be safely handled during the peak periods. The staffing shortages might become a factor in the total daily capacity of the ATC system if the need to handle peak traffic were extended throughout the day, thus requiring that all control positions remain staffed for prolonged periods. However, the Safety Board does not believe that arbitrary increases in the number of controllers, over the presently authorized full staffing level, would produce a corresponding increase in the number of aircraft that the ATC system could handle safely.

During the last several months airlines have experienced mounting delays for scheduled departure and arrival flights. Deregulation and airline hubbing concepts have been major factors in these delays, which have been increasing and will continue to rise with the increase in flights during the upcoming summer travel period unless corrective action is implemented. These delays occur because the airlines schedule more department and arrival flights during a specific time period than the airports and ATC system can accommodate. The FAA has stated that it will continue to adhere to its policy to hold airplanes on the ground at their departure points until the ATC system capacity is capable of handling the airplanes for their entire flight routing, and the Safety Board strongly supports this policy.

Theoretically, airplanes should not be required to fly holding patterns as a result of in-flight delays except for unforeseen circumstances such as weather, runway closings, or ground equipment discrepancies. However, during visits to the Boston and Cleveland ARTCCs, Safety Board investigators learned that some aircraft destined for Boston Logan Airport and Chicago O'Hare Airport are required to hold in flight because airborne traffic is exceeding the airport acceptance rates. The Safety Board believes that this situation indicates limitations in the ability of the present ATC flow control program to adjust system demand to match system capacity.

The Safety Board is concerned particularly that any FAA actions to succumb to industry and public pressure to reduce delays by relaxing restrictions on access to the ATC system will overtax airport and controller capabilities. In this regard, the FAA's recent actions to relax several flow control measures, including a reduction in in-trail restrictions to as little as ten nautical miles in some airspace, could adversely affect controller workload and compromise system safety. The Safety Board is not aware of the extent of which the FAA evaluated the potential impact of these actions and believes that a thorough analysis must consider such factors as controller workforce experience and the complexities that can arise when weather phenomena suddenly develop.

The Safety Board believes that a safer way to reduce airline delays and to alleviate the peaks in ATC system demand is to impose realistic flight scheduling by all the air carriers. Some departure and arrival times for scheduled flights must be rescheduled to times when the airports and ATC system are underused. The Safety Board understands that the recent efforts of the Office of the Secretary of Transportation (OST) and the FAA to elicit cooperation with the airlines to resolve scheduling peaks has been partially successful. The Safety Board believes that the OST and FAA should continue to encourage and coordinate voluntary actions by the air carriers to achieve schedules compatible with ATC system capacity. If voluntary measures are not successful, the FAA should review the need for other actions such as an extension in the application of the high-density traffic airport limitations.

The Safety Board believes that the key to achieving maximum ATC system capacity involves the implementation of effective and efficient traffic management programs. These traffic management or flow control programs should be automated and should include predictive capabilities based on the dynamic analysis of traffic conditions. The traffic management programs should be adequate to ensure that the workload of individual controllers does not exceed safe levels.

The Safety Board's staff and some of the Members have been briefed on the FAA's new aircraft situation display (ASD) which has been developed for use in its Central Flow Control Facility. The staff has been advised that this new program will provide the capability for flow control technicians to analyze real-time traffic conditions in all 20 domestic ARTCCS. However, this system still is in the developmental stage, and additional computer software and hardware enhancements are necessary before the system will be able to predict two hours or more ahead of time when a particular sector will be approaching saturation. Hence the present version is for the most part reactive in nature and lacks a predictive capability which will not be available until at least September. The Safety Board hopes that the present program will be used to conduct comprehensive analysis of individual ARTCC sectors which have been identified as reaching traffic saturation at certain times in the day. Such an analysis should enable the FAA to examine current departures and arrivals at major airports and the routes of flight in between so that traffic management solutions can be developed to alleviate the peak traffic period. This new flow control tool, particularly when a predictive capability is added to the system, can significantly enhance the FAA's ability to reduce peak traffic periods in specific ATC system sectors and airspace.

That completes my formal statement, Mr. Chairman. I will be pleased to respond to questions.

The next witness will be the Associate Director of the General Accounting Office, Herb McLure. Mr. McLure, will you come around.

Mr. McLure, we are delighted to see you. You have been here before, so you know how we proceed. So if you have a statement for the record, that statement will be included in the record and you may proceed with your highlight.

STATEMENT OF HERBERT R. McLURE, ASSOCIATE DIRECTOR, GENERAL ACCOUNTING OFFICE; ACCOMPANIED BY TONY CSI SARI; AND TOM BARCHI

Mr. McLURE. Thank you, Mr. Chairman.

I would like to introduce Tony Csisari and Tom Barchi. I brought them along in case you wanted to ask some specific questions. Tony is quite familiar with the computer system that FAA uses in its flow control management, and Tom is very familiar with the numbers that we presented in our report to Senator Lautenberg a few weeks ago that many people have talked about.

I think this has been a good hearing. I think you have discussed most everything we had in our prepared statement. So rather than read that, I would like to just review a few things with you.

One is I think it is important for you to understand what kind of evidence we have relied on in coming to the conclusions we have

come to, and then I would like to be pretty specific about the fact that we agree with NTSB's recommendations, but I want to be specific about which ones.

The evidence we have used started with a survey we did of the controller work force. That was about two summers ago, just about two years ago from now. The controllers, their supervisors and managers told us they were stretched too thin.

Some of the numbers were mentioned here today, 70 percent of them said that sometimes they have to handle more traffic than they thought they should have to handle. So these were big numbers.

We looked at FAA hiring practices, training practices, and so forth, and we concluded that they could not increase the number of controllers they had very rapidly because it takes time to do that. Admiral Engen mentioned that today.

The technology that will reduce workload in the future is not going to be available for a long time in the future. So we concluded that they only had two choices. One was to continue to stretch the controllers or the other was to limit the traffic.

So we recommended that FAA limit traffic. Now, we did not say how or where. Our point really was that they need to tailor the traffic to the capacity of the air traffic control system. That is, where they are short on controllers they need to limit the traffic going into those areas. We did not have in mind that there be a blanket limitation on traffic.

Our recommendation was very much like the recommendation you have heard NTSB make today. You also heard Admiral Engen say, "Yes, that is what we are already doing. In fact, that is what he said in response to our recommendation about a year ago. He said: We do not really disagree with GAO; we are doing all the things they say we should do, and we are doing them well enough and the system is safe.

Well, early this year a different committee asked us to look specifically at the situation around Chicago. FAA had said that, things are safe enough and we are sure they are because we use central flow control, we use traffic management units, we use supervisors to watch individual controllers, and we use the judgment of the individual controllers themselves.

So we looked at the situation in Chicago and found that central flow does not consider—I should not say it quite that way, but does not factor in in the way that it should be the traffic that the individual controllers are having to handle; that supervisors were spending most of their time actually controlling traffic, rather than watching workloads in sectors; that the traffic management unit only had four people in it instead of the 21 or so that is the FAA staffing goal for that unit, which boiled down to really only having the air traffic controller's judgment itself as a way to limit traffic.

So what we said again was that the things FAA says they are relying on do not seem to exist in Chicago, so we think FAA should be more careful about limiting the traffic that is going in there.

Later, Senator Lautenberg asked us to look at similar kinds of numbers and factors at other locations around the United States. We did, and we found that there are some other centers and terminals that seem to have similar staffing conditions to Chicago. And

so we said, based on this data, it seems to us that Chicago is not the only place in the United States that FAA needs to be careful about the traffic going into.

Our bases, as you can see, are fairly general. We are not saying which sectors are a problem. We are not saying how much traffic should be restricted, and so forth. And I think a logical question to be asked of us and the FAA is, why is GAO so general?

I think the answer to that is that, if you will notice what we have done, we have relied on FAA's criteria for what is safe or not. Now, FAA does not have any criteria that it agrees on for how much traffic should exist in a sector. So we cannot go out and look at the sectors and tell you that there is more traffic than FAA says there should be in that sector, because they do not have that criteria.

I think a question you need to ask yourself is that, if flow control is going to work, if the computer is going to advise FAA which sectors are going to be overloaded, FAA is going to have to come up with some way to tell the computer what is too much.

So we think that FAA really needs to get on with defining how much traffic should exist in an individual air traffic control sector. Now, FAA is doing that. They have a contractor that has been trying to do that for some 2 years now, and they are coming close to the end of that contract and so they should have these sectors defined before too long.

I think what we are saying and what NTSB seems to be saying is: Let us not get the cart in front of the horse; let us make sure you have all the tools before you allow the traffic to rise in these places where we know that traffic is a problem.

Admiral Engen said today that he fully intends to do that. I believe he does, but we are still seeing indicators that what FAA is doing does not really handle the problem at all times in the system.

And so I guess what both we and NTSB are doing is saying that FAA ought to be even more careful than they say they are already being.

I guess I will conclude what I have to say with that, and we will be happy to answer any specific questions you might have.

Senator FORD. Thank you, Mr. McLure.

I think you made it clear today in general terms, but you were very specific in your statement that your studies of the air traffic control system left the FAA with two options, restrict traffic or continue to stretch controller workload.

Now, how stretched do you think the controller workforce is now, today?

Mr. MCLURE. The only real data we have is two years old now, as I mentioned. We have not gone back and done another survey of the controllers, so we do not know what their opinion is of their workload right now.

We do know that in places controllers are being asked to work longer than the FAA standards call for them to work at their position. So we would have to say that, based on the data we have seen, that controllers are being asked in some places, are being stretched thin.

Senator FORD. How far can we go? You generally agree with the National Transportation Safety Board in what they are saying, that flights should be restricted this summer to ensure safety. How could this best be accomplished while at the same time avoiding the threat of reregulation?

Mr. MCLURE. I think there are some alternatives that have not been explored. I think what FAA is doing to try to meter the traffic is the obvious solution to them at this point.

I think—and these are things I have read. We have not done any actual work on these things, but I have read proposals that suggest you use a market system at airports. For example, place a value on the right to land at 8 o'clock, or let the airports have that right and let the airlines bid on the right to land at 8 o'clock, and then let the travelers that want to land at that time pay more for that privilege, or pay as much as the airline thinks it has to charge.

That would be one——

Senator FORD. Of course, that is contrary to what is going on now with Super-Savers and all that sort of thing, to entice people to fly. Of course, we have complaints that there are two seats on a 200 seat airplane. And then they are not refundable and you have to buy four tickets in advance. Then you have to buy your ticket the day before and go through all that fine print. There is some concern about that.

That seems to be the reverse of the business trend or industry's trend as it relates to trying to entice more people to fly by having flights. What they are actually doing is trying to get you to fly during their lulls, and so that is a new traveler, someone who would not normally travel every weekend or every Monday morning and back every Friday night, Friday evening.

So I am a little bit concerned about that individual who must travel on Monday morning or on Friday night, that you increase his cost of doing business.

Mr. MCLURE. Well, that is true, but those people are willing to pay more, too. I mean, it is important to them to travel at that time.

Senator FORD. Well, you are almost putting them in the position that they either pay or do not go.

Mr. MCLURE. Well, I do not think so, but that certainly is an argument against.

Senator FORD. I am just trying to take the businessman's approach to what he would think about what you are doing to him. To fly out of Louisville at 7:50 in the morning, land here at 9:30 and be downtown by 10 o'clock, ready to go to work, and then picks up the 7:40 out here in the evening back to Louisville. He has put in a day in Washington or a day in New York or Boston or wherever and back at home at night. He has performed his occupation and has done it in a day's period.

Now, Mr. Burnett was saying he might be delayed until the next day under those circumstances. That is a pretty expensive night in New York or Boston or Washington, wherever it might be, and that adds to his expenses.

Maybe under those circumstances he would rather pay a little more to get out in the morning, get back at night, and the cost

would be the same. I do not know. It is a difficult thing to try. We are back into re-regulation if we are not careful here.

We are trying to let the industry work its will, but trying to keep it safe. I think we have got to keep the pressure on.

And I am awful worried about controllers and the money in the trust fund. As problems mount, the money in the trust fund increases. And so we find out tax on you flying, putting the money in to give you a safer airway, and yet we are sitting here struggling.

If we put in too much money, it is vetoed, and we are not able to function properly. I find myself very frustrated, very frustrated. I know we need more controllers.

I know we need new and advanced equipment, and I think we have to make a decision on what equipment we are going to have and quit fooling around with it, because the state of the art is going to improve every day. If you keep waiting on the state of the art to come to a screeching halt, you will never buy any new equipment, and I think that has been delayed long enough.

I see some heads nodding out there, and I am glad that you agree with me a little bit.

Have you all had any experience or looked at the Host computer that is now being tested out in Seattle?

Mr. McLURE. Yes. Actually, I am glad you asked that question, because the last time we testified before this committee the question came up of when was it going to be ready, and we raised some doubts about whether they would be using it by now.

Well, the fact is they are using it by now, and I would like to publicly congratulate FAA for doing that. I visited a facility a couple weeks ago and looked at the host computer operation. The controllers are happy with it. Of course, they do not see any difference between the Host and the equipment that they had before except that is faster. Things appear on the screen more quickly.

Senator FORD. It is a better piece of equipment?

Mr. McLURE. It has much more capacity and it is a much better piece of equipment, yes, much more reliable.

Senator FORD. In your opinion, is it performing well?

Mr. McLURE. According to the people in Seattle, it is performing beyond their expectations.

Tony, do you know any more about that?

Mr. CSISARI. I would agree. And we have looked at several other centers, for example Leesburg—not Leesburg, rather, but Denver and Houston. They appear to be just as satisfied with the progress that they are making in installing and getting the initial testing completed on the host system.

Senator FORD. So we are making some progress in that. I have been very interested in that, to move on with it and get them installed as quickly as possible. When I say quickly as possible, I mean for them to do it right and not delay the implementation of this new equipment. So I am glad to hear that at least that is moving and progressing in the right direction.

What about the training of the controllers? Admiral Engen made a statement earlier that he would need 100,000 applicants in order to acquire 1,000 new controllers. I was not here at the time he made that statement, so he and I are going to have a conversation about that.

Do you have any reason—do you have any background as to why that is? I know you have a lot of applicants and they are screened. Do you have to have 100,000 applicants and they screen down to approximately 1,000?

Mr. McLure. I do not know if those numbers are exactly right, but they start out with many more applications than they wind up with controllers. Now, most of that fallout occurs in the screening of the applicants themselves.

There are training dropouts that occur in the training process. Those percentages of dropouts have remained pretty stable for the past 5 or 6 years.

Senator Ford. So we have got a pattern that has developed as it relates to the number of applicants to the final number of controllers that go to work, go on board?

Mr. McLure. The FAA feels that they are being very selective, appropriately, and I do not think any of us would agree with that—would disagree, rather.

Senator Ford. Mr. McLure, you and your associates with you at the table have been very good and been very conscientious and I think very fair in your assessment of what we are trying to do here. And I hope that all three—the FAA, the National Transportation Safety Board, and your group in GAO—would continue to work together to help us do what I think you believe we want to do.

I think the new legislation that we will put out with the increased for money the new controllers and for the new equipment will indicate that we are sincere in trying to make the effort to improve the situation out there.

I hope that piece of legislation passes, and I hope the Administration will not see it as budget-bashing because it is coming out of our trust fund, and that is what you and I pay for when we fly.

So I do compliment you and thank all three of you for what you are doing.

Senator Exon.

Senator Exon (presiding). Thank you, Mr. Chairman.

Gentlemen, I hear all the time when I ask, what happened this time, and I would guess that fully half the time the answer that I get is: Well, the computers went down. The computer went down in Cleveland and therefore that fouled everything up in O'Hare.

And the last flight that was delayed, I was told the computers went down in Cleveland and the computers went down in Chicago, and so forth and so on.

We have a computer expert here. Do computers go down that often, or is that an excuse rather than a fact that I am given?

Mr. Csisari. Well, you have to think about it in personal terms, too. If your telephone bill is not properly done, it is the computer that goofed up, according to the people. And a lot of things get blamed on computers, or a lot of events get blamed on computers.

The 9020's that the FAA currently has installed at the air traffic control centers are old technology and they are, so to speak, on their last legs. They are doing the best they can to keep the computers running, and you have to give them credit for the excellent job that they have done to date.

The reported instances in Denver where they said the computer had gone down, a preliminary look by our staff at the Denver regional office indicated that that is in fact what did happen. There were computer failures.

But because the air traffic controllers prefer to work with known data rather than data that keeps switching back and forth—that is, with their regular PVD's they get certain information on there and with their backup they get a rather limited but adequate amount of information to control the aircraft—what they decided at that point was to stay on the backup.

So in essence the computer, the main computer, was reported as being down for a long period of time when the decision was that, we want to stay on our backup until we can be certain that the main computer will stay up.

So that the answer is that yes, they do go down.

Senator EXON. Well, my first question is to you. You have told us the computers are getting old and on their last legs. We have got $5 billion in the trust fund. Are they replacing those?

Mr. MCLURE. Yes, that is what the Host computer is that we were talking about earlier. And FAA is replacing those old computers as quickly as they can.

The Host computer is a vast improvement over the old 9020 computer. It is much more reliable and it works much better. So they are doing that and they are doing it quickly.

Senator EXON. Let us get back to safety a little bit, and I know you have been over here before and other members of your organization have been here. We appreciate the help and consideration that GAO is doing in this area. Do you agree, as others from the GAO have testified in response to a direct question by this Senator, do the three of you feel as personally secure flying into O'Hare Airport today as you did a few years ago?

Mr. MCLURE. I will let them answer. I answered that once before that I feel better about it now than I used to.

Senator EXON. You feel better about it now than you used to?

Mr. MCLURE. Yes. Well, there are a lot of reasons for that. Partly, I know more about the system now than I used to and so, you know, you are always less afraid, I think, of the known than you are of the unknown.

Senator EXON. Do you feel that way, Mr. McLure, even though we have had testimony here from the National Transportation Safety Board that there are more near-misses than ever and they are going to go up? We did not used to have that many near-misses, as testimony before this committee would indicate.

But you feel, in view of that, you still feel better? Well, that is fine.

Mr. MCLURE. Well, you asked me a relative question. You did not ask me if I feel as safe as I would like to feel.

Senator EXON. No, I did not. I know you do not feel—I guess none of us do when we fly an airplane. But I am reassured to think that you feel more secure today than you did 6 or 8 years ago.

Mr. MCLURE. There again, you do not know exactly where I am coming from. I might have been really afraid to fly 6 or 8 years ago.

Senator EXON. Well, I do not suppose the men sitting on the right and the left of you are nervous flyers. Could they answer my question?

Mr. BARCHI. Personally, I think the system could be a lot safer, could be improved, than it is today. But that is not to say that I am afraid of flying into Chicago O'Hare Airport.

Senator EXON. My question was do you feel as secure flying into O'Hare today as you did 6 years ago?

Mr. BARCHI. I probably do, yes, sir.

Senator EXON. You feel as secure today?

Mr. BARCHI. That is correct.

Mr. CSISARI. Sir, it has been more than 6 years since I have flown into Chicago Airport, and at that time I felt very safe. I cannot respond to that because I have not been that way. Most of my work is in New Jersey at the FAA technical center and I drive over there.

Senator EXON. You drive over there?

Mr. CSISARI. Yes, sir.

Mr. MCLURE. Maybe we sound a little evasive to you. We hope not.

Senator EXON. Regarding the inconvenience to customers of the airlines, I think you have done some studies in that area, have you not?

Mr. MCLURE. Not directly on inconvenience. We have looked at how the system works. I think the lines of questions here today have been interesting on that.

Senator EXON. We want to stay away from re-regulation of the airlines. That point has been made in previous statements and questions here.

But the Secretary of Transportation herself has indicated that we may have to take some appropriate action, however, it has not been specifically spelled out. It seems to me that much of this overbooking, overscheduling, delays, and these things that we are wrestling with from the consumer's standpoint today, is brought about to some extent by the airlines themselves by overscheduling in certain periods and time frames. Too many planes are trying to go to the same place at essentially the same time.

It all gets back to pricing, you know. The airlines declare that they have got to fill up each one of these airplanes. And you will see when you fly in them today, most of them are full. If you can find an empty seat, that is an unusual phenomenon.

I can understand that they make money in doing that. But since at least that is part of the reason that passengers are being inconvenienced today, what would you think of the possibility, and would it work, to require the airlines to pay a fee of some kind to someone if they arrive more than an hour late or if their bags do not show up for 12 hours or something like that?

Do you think that if we had some kind of an arrangement where the airlines, would be peralized for the inconvenience that they caused their customers, that they might do a better job of taking care of the increasing number of customers that they are all enjoying?

Mr. MCLURE. I guess I had not thought of it from that direction, because we all know the airlines would be very uncomfortable with

any proposal like that. I think any system that creates either a penalty for doing the thing you do not want them to do or a bonus for doing the thing you do want them to do will generate a kind of behavior that you are looking for.

So if you penalize the airlines enough for arriving late, my guess is they will change their schedules so that that does not happen to them too often.

Now, the airlines do have a real good idea of when and where they are going to be delayed. I mean, they know where the pressure points are in the system. And in fact, FAA tells them in advance when they are going to delay them because of traffic reasons.

For example, I was in the ASD this morning. They knew they had a thunderstorm in Texas and they knew that was going to affect the traffic moving through the en route center around DFW. They informed the airlines that airplanes going to DFW were going to be delayed, and they even informed them by about how much.

So those airlines knew this morning that passengers going into DFW this afternoon were going to be delayed. I venture to guess they did not tell the passengers.

Senator EXON. To the contrary, they take the passengers, they get them on that airplane as quickly as they can and they pull it away from the gate with the door closed up so you cannot get out if you want to.

Within the last 2 weeks, I spent 2 hours on an airplane full of people, sitting out at National after we pulled away from the gate. Now, I do not suppose that harmed me a great deal, but it seemed like it would have been more hospitable on their part to at least let me lounge in their lounge, where I can smoke my pipe, rather than putting me on.

It seems like they want to box you up and start to move so that you do not decide not to fly on an airplane that day.

One last question. In your investigation of the airlines, how well do you think they are going about the business of overall maintenance? With the pressure that is obviously on crew today—and you have investigated that—and with the pressure that is on air traffic controllers, how good a job do you think is being done overall in the commercial airline industry with regard to the same quality of maintenance that we used to come to expect as normal from the airlines?

I am very fearful that, with the deregulation, that maintenance may have suffered. Are my fears founded or not in your opinion?

Mr. MCLURE. I would love to be able to answer that more directly, but I cannot. We have not done any specific work at airlines to see how well they are maintaining the airplanes.

We have looked at how well FAA goes about its inspection process to be sure that the airlines are doing their job. What we know is that FAA, despite doing better now than they have in the past, for a variety of reasons does not know for sure that airlines are complying with all the rules and regulations they have to follow in maintaining their airplanes.

Please do not misinterpret us. That does not mean the airlines are not doing it. All it means is that FAA does not know whether they are.

Senator EXON. Well, if FAA does not know whether or not they are, I suspect that the airlines might not be doing all the things that they should be doing.

I guess when you are under pressure things may slip a little. I have used this example before, but if I ran a truck line and looking at that bottom line on the financial statement each and every week or month, I suspect that I might decide to use those tires another 5,000 miles down, where as I would have changed them under the old criteria.

I fear that is a concern, and I am not sure that the FAA is doing the job in that area that they should.

Gentlemen, I have got to go and vote. We appreciate very much your testimony. It has been helpful, as always. And with my thanks to you, the subcommittee is adjourned.

[The statement follows:]

STATEMENT OF HERBERT R. MCLURE, ASSOCIATE DIRECTOR, RESOURCES, COMMUNITY, AND ECONOMIC DEVELOPMENT DIVISION, GAO

Mr. Chairman and Members of the Subcommittee: We appreciate this opportunity to comment on the National Transportation Safety Board's (NTSB) recommendation to the Federal Aviation Administration (FAA) to limit traffic at the Nation's busiest airports until it can implement an improved flow control program. Our recent recommendations to FAA are basically the same as NTSB's.

We reported in March 1986 [1] that during 1985 we had surveyed the controller work force including supervisors and managers, and found that they thought they were being stretched too thin. They believed the situation could impair their ability to maintain the proper margin of safety. Also our consultant, the Flight Safety Foundation, concluded that the ATC system was not as safe at the time of our survey as it was before the 1981 strike. We concluded that FAA could not quickly increase the number of air traffic controllers or provide new equipment to reduce their work load, leaving it only two choices: continue to stretch the controllers or limit air traffic. We recommended limiting traffic, but did not specify where or how. We did not have in mind a general limitation on the total quantity of air traffic, but rather limits on the quantities of air traffic in FAA's busiest control sectors at their busiest times. In other words, we believed that FAA should do more to tailor air traffic to the capabilities of its air traffic controllers.

In its response to our report and in hearings, FAA has stated that its existing traffic management system prevents controllers from having to control more traffic than they can safely handle and that the safety level of the ATC system is not being adversely affected. FAA also stated that, while controllers may perceive that they are overworked, the traffic management system includes a number of safeguards to preclude overload from happening.

In addition to its central flow control program, FAA identified the following safeguards: (1) recent improvements to the traffic management system to predict overload and alert flow control, (2) local traffic management units (TMUs) at each of the 20 air route traffic control centers in the continental U...ted States[2] and at designated airport towers responsible for monitoring traffic flow and ensuring that safe levels of air traffic are not exceeded, (3) first-line supervisors responsible for monitoring individual sectors and adjusting traffic flows, and (4) the controllers, themselves, who are responsible for making individual judgments on how much traffic they can safely handle.

FAA believes that these safeguards, if properly implemented, should accomplish the "tailoring" of air traffic that we believe is needed. However, we recently looked into how well these safeguards were working in the Chicago area to respond to inquires from the Subcommittee on Government Activities and Transportation, House Committee on Government Operations. We reported at the Subcommittee's February 27, 1987, hearing, that none of the safeguards were fully implemented and were

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[1] Aviation Safety: Series Problems Concerning the Air Traffic Control Work Force (GAO/RCED-86-121, March 6, 1986)

[2] Air route traffic control centers, referred to as "en route centers" control flights between airports.

not reliable means for assuring that controllers are not faced with more traffic than they can safely handle.

First, the existing flow control program is designed to control aircraft departures and en route flows based primarily on weather conditions and capacity at arrival airports rather than controller work load at the centers. Moreover, FAA estimated at that time, that the en route sector loading program, intended to predict overloads in specific en route sectors and alert flow control, will not be fully operational for several more years because of limited computer capacity.

In addition to flow control, FAA says it looks to its traffic management coordinators, supervisors, and controllers to make judgments on how much traffic can be safely handled. But, the en route Chicago center traffic management unit was staffed with only four full-time coordinators, instead of FAA's goal of 21 and the Chicago tower did not have a traffic management unit at all. In our 1985 survey, supervisors at the Chicago center told us they typically spent 60 percent of their time working traffic, and over 60 percent of them said that this hindered their ability to coordinate airspace and perform other procedural or operational matters. Half of them also said that they did not believe that they had sufficient say in determining the volume and complexity of traffic the controllers they supervised were expected to handle.

We also found that the hourly traffic capacity acceptance rates FAA had determined for O'Hare Airport did not directly consider controller staffing levels or the performance limits or capabilities of the controllers who are actually on duty.

So FAA's "safeguards" to preclude ATC system overload around Chicago boiled down mainly to depending on controllers to make individual judgments about how much traffic they could safely handle on the basis of their own professional knowledge, experience, and skill. At the request of the Subcommittee on Transportation, Senate Committee on Appropriations, we later gathered FAA data similar to the data we gathered at Chicago for other FAA centers and major terminals which had experienced increased air traffic activity, to determine whether similar conditions existed elsewhere in the system. As is generally perceived, we found traffic substantially higher than pre-strike levels and experienced staffing levels lower than FAA goals. We also found FAA authorized traffic management unit staffing substantially below the levels called for by FAA's staffing goals in all 16 en route centers we checked, and actual full-time staffing below the FAA-authorized levels in 11. We found full-time staffing levels below FAA-authorized levels for TMU's in 8 of the 11 towers, when applicable. And finally, we found that first line supervisors control traffic at least 25 percent of their total time in six centers and three towers.

From these data, we concluded that the situation we found in Chicago was not unique and that there were other centers and towers

Based on our work we agree with NTSB's recommendation that FAA reduce air traffic density when and where the ATC system is operating at near saturation levels until a flow control program is developed which can meet the dynamic requirements of the system. We would add that an adequate flow control program must take into account not only the predicted quantities of air traffic but also controller staffing levels and performance limitations. Toward this end, NTSB recommended that FAA solicit controller views as well as analyzing pertinent data to identify critical sectors, establish criteria for maximum safe traffic density in critical sectors, and develop a means for predicting periods when traffic levels might approach or exceed safe limits. Again, we agree and offer our 1985 questionnaire as an example of a statistically valid was of obtaining reliable information from controllers and their supervisors.

[Whereupon, at 4:52 p.m., the subcommittee was adjourned.]

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